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SAM/IA: A Rapid Screening Method for Environmental Assessment of Fossil Energy Process Effluents

Acurex Corp, Mountain View, Calif Aerotherm Div

Prepared for

Industrial Environmental Research Lab, Research Triangle Park, N C

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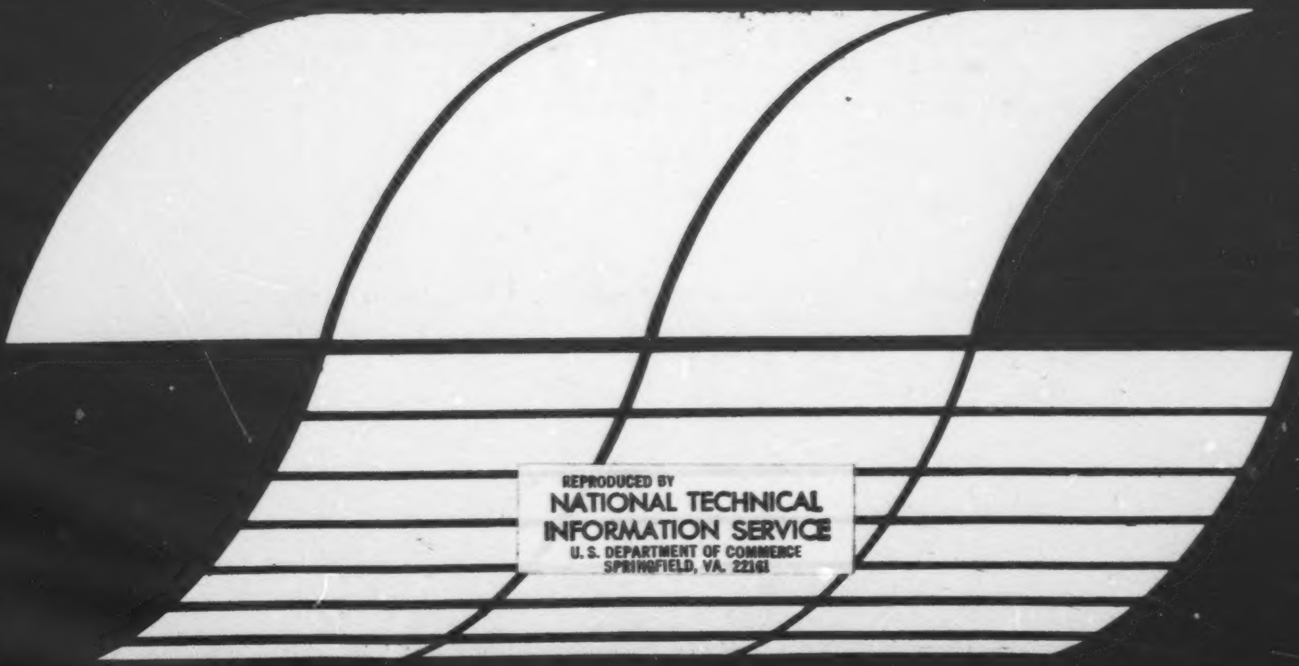
Interagency
Energy-Environment
Research and Development
Program Report



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Combustion Control	Properties	Stationary Sources	21B	
Assessments	Toxicity	Environmental Assessment	14B	06T
Selection				
Fossil Fuels		SAM/IA	21D	
Energy Conversion Techniques		Source Analysis Models		
		Rapid Screening Format	10A	

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Washington, D.C. 20460

ABSTRACT

The Environmental Protection Agency's Industrial Environmental Research Laboratory-RTP Energy Assessment and Control Division (IERL-RTP/EACD) conducts programs to develop control technology and perform environmental assessments for both energy and industrial processes.

In conducting environmental assessments, it is necessary to do one or more of the following tasks: (1) rank individual effluent streams by the expected toxicity of their discharges, (2) establish sampling priorities, (3) determine problem pollutants, (4) recommend best multimedia control technology alternatives, and (5) recommend control/disposal technology development programs. This report describes the simplest member of a sequence of Source Analysis Models (SAMs) of increasing complexity and thoroughness which can be used as a tool to help with these five tasks. This model, SAM/IA, is useful for rapid screening of each effluent stream from a specific source. It is based on a comparison of effluent concentrations with the set of Minimum Acute Toxicity Effluent (MATE) criteria established by the EPA. This report explains the purposes of SAM/IA and describes the model embodied in SAM/IA, the format used and the MATE criteria against which pollutants are gauged. Several examples have been included to illustrate specific facets of the use of the model and of the format.

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SECTION 1

INTRODUCTION

The Environmental Protection Agency's Industrial Environmental Research Laboratory-RTP Energy Assessment and Control Division (IERL-RTP/EACD) conducts programs to develop control technology and perform environmental assessments for both energy and industrial processes. The primary purpose of environmental assessment activities is to provide a necessary portion of the research base which supports standards development by EPA program offices. Therefore, these assessments:

- Determine environmental loadings, control costs and energy impact when existing or "best future definable" sets of control or disposal options are applied to specific sources or processes
- Compare these environmental loadings with existing standards or estimated Multimedia Environmental Goals (MEGs) to establish control need priorities

In particular, it is important to be able to determine which control options are the most environmentally effective for each polluting source. It is also important to establish sampling priorities, identify problem pollutants, rank effluent streams with respect to degree of hazard in already existing plants and compare the relative degree of hazard between plants.

If comparisons between environmental assessments are to be of maximum benefit, the assessments need to employ a standardized methodology, insofar as the subjects of the assessments will allow. IERL-RTP/EACD has thus chosen to create a standardized set of Source Analysis Models (SAMs) which will couple to multimedia environmental goals (MEGs). Figure 1 diagrams the development of environmental assessment methodology and control technology. The box labeled Environmental Alternatives Analyses encompasses the

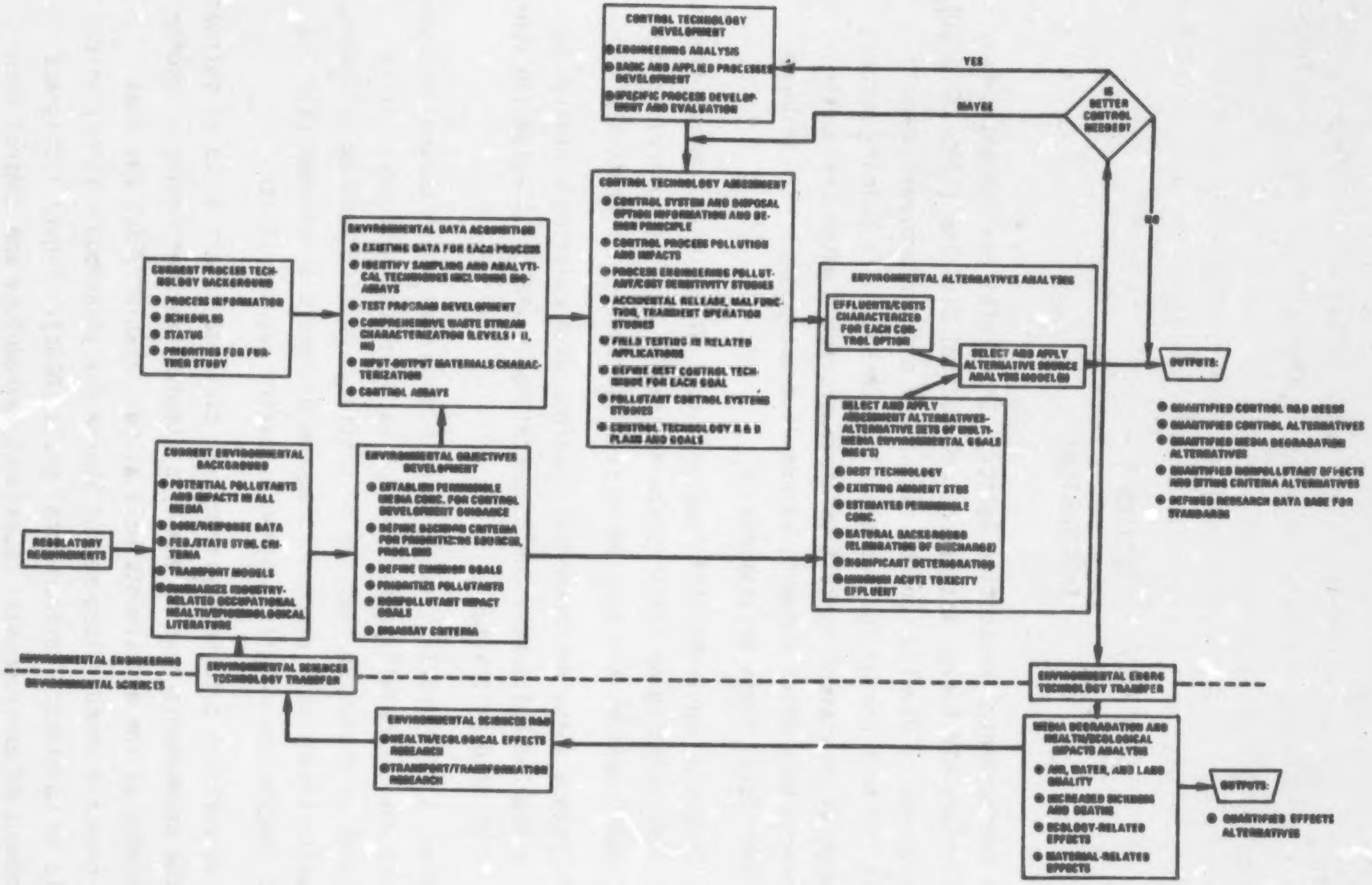

REGULATORY REQUIREMENTS
CURRENT PROCESS TECHNOLOGY BACKGROUND
PROCESS INFORMATION
SCHEDULES
STATUS
PRIORITIES FOR FURTHER STUDY
ENVIRONMENTAL DATA ACQUISITION
EXISTING DATA FOR EACH PROCESS
IDENTIFY SAMPLING AND ANALYTICAL TECHNIQUES INCLUDING BIOASSAYS
TEST PROGRAM DEVELOPMENT
COMPREHENSIVE WASTE STREAM CHARACTERIZATION (LEVELS I, II, III)
INPUT-OUTPUT MATERIALS CHARACTERIZATION
CONTROL ASSAYS
CURRENT ENVIRONMENTAL BACKGROUND
POTENTIAL POLLUTANTS AND IMPACTS IN ALL MEDIA
DOSE/RESPONSE DATA
FED./STATE STDS. CRITERIA
TRANSPORT MODELS
SUMMARIZE INDUSTRY-RELATED OCCUPATIONAL HEALTH/EPIDEMIOLOGICAL LITERATURE
ENVIRONMENTAL OBJECTIVES DEVELOPMENT
ESTABLISH PERMISSIBLE MEDIA CONC. FOR CONTROL DEVELOPMENT GUIDANCE
DEFINE DECISION CRITERIA FOR PRIORITIZING SOURCES, PROBLEMS
DEFINE EMISSION GOALS
PRIORITIZE POLLUTANTS
NONPOLLUTANT IMPACT GOALS
BIOASSAY CRITERIA
CONTROL TECHNOLOGY DEVELOPMENT
ENGINEERING ANALYSIS
BASIC AND APPLIED PROCESSES DEVELOPMENT
SPECIFIC PROCESS DEVELOPMENT AND EVALUATION
YES
MAYBE
IS BETTER CONTROL NEEDED?
NO
CONTROL TECHNOLOGY ASSESSMENT
CONTROL SYSTEM AND DISPOSAL OPTION INFORMATION AND DESIGN PRINCIPLE
CONTROL PROCESS POLLUTION AND IMPACTS
PROCESS ENGINEERING POLLUTANT/COST SENSITIVITY STUDIES
ACCIDENTAL RELEASE, MALFUNCTION, TRANSIENT OPERATION STUDIES
FIELD TESTING IN RELATED APPLICATIONS
DEFINE BEST CONTROL TECHNIQUE FOR EACH GOAL
POLLUTANT CONTROL SYSTEMS STUDIES
CONTROL TECHNOLOGY R & D PLANS AND GOALS
ENVIRONMENTAL ALTERNATIVES ANALYSIS
EFFLUENTS/COSTS CHARACTERIZED FOR EACH CONTROL OPTION
SELECT AND APPLY ALTERNATIVE SOURCE ANALYSIS MODEL(S)
SELECT AND APPLY ASSESSMENT ALTERNATIVES-ALTERNATIVE SETS OF MULTIMEDIA ENVIRONMENTAL GOALS (MEG'S)
BEST TECHNOLOGY
EXISTING AMBIENT STDS
ESTIMATED PERMISSIBLE CONC.
NATURAL BACKGROUND (ELIMINATION OF DISCHARGE)
SIGNIFICANT DETERIORATION
MINIMUM ACUTE TOXICITY EFFLUENT
OUTPUTS:
QUANTIFIED CONTROL R&D NEEDS
QUANTIFIED CONTROL ALTERNATIVES
QUANTIFIED MEDIA DEGRADATION ALTERNATIVES
QUANTIFIED NONPOLLUTANT EFFECTS AND SITING CRITERIA ALTERNATIVES
DEFINED RESEARCH DATA BASE FOR STANDARDS
ENVIRONMENTAL ENGINEERING
ENVIRONMENTAL SCIENCES
ENVIRONMENTAL SCIENCES TECHNOLOGY TRANSFER
ENVIRONMENTAL ENGRG TECHNOLOGY TRANSFER
ENVIRONMENTAL SCIENCES R&D
HEALTH/ECOLOGICAL EFFECTS RESEARCH
TRANSPORT/TRANSFORMATION RESEARCH
MEDIA DEGRADATION AND HEALTH/ECOLOGICAL IMPACTS ANALYSIS
AIR, WATER, AND LAND QUALITY
INCREASED SICKNESS AND DEATHS
ECOLOGY-RELATED EFFECTS
MATERIAL-RELATED EFFECTS
OUTPUTS:
QUANTIFIED EFFECTS ALTERNATIVES

Figure 1. Environmental assessment/control technology development diagram.

SAM/MEG system. SAMs, as currently envisioned, address source identification and goal comparison questions; MEGs, by definition, address goals. SAMs do not currently include cost definitions and summations. Battelle-Columbus and Research Triangle Institute (RTI) are currently engaged in creating MEGs. Those RTI-created MEGs which are designed for rapid screening are the "Minimum Acute Toxicity Effluent" MEGs, abbreviated as "MATEs."

Various member of the set of SAMs will provide rapid screening, intermediate, or detailed approaches to relate effluent stream pollutant emission levels to the MEGs. Later members of the sequence of SAMs will couple to techniques for effluent transport and transformation analyses (ETTAs). Together they are intended to provide a coarse screening of effluent stream impact for use in environmental assessments.

This document describes the rationale and framework of the simplest SAM, designed for rapid screening with no effluent transport and transformation analysis. Rapid screening of the degree of hazard and the rate of discharge of toxic pollutants may occur at any level of depth of chemical and physical analysis. Indeed, the decision to conduct detailed effluent characterization analysis (i.e., "Level 2") will ordinarily be made as a result of a SAM analysis based on an initial screening. The SAM procedure has been designed to provide the guidance required to go from "Level 1," in which only the presence of broad categories of chemical compounds is determined, to "Level 2," in which the presence or absence of specific chemical compounds is established.

An introductory discussion of the rationale followed by a stepwise description of the SAM/IA format is given below. Examples of the application of SAM/IA follow to illustrate use of the SAM/IA model and format. The two key application modes for SAM/IA are:

- Interpretation of Level 1 sampling and analysis results to determine maximum potential "degree of hazard" and "toxic unit discharge rate"
- Interpretation of Level 2 sampling and analysis results to determine potential "degree of hazard" and "toxic unit discharge rate"

In SAM/IA, major simplifying assumptions have been made about pollutant transport and transformation in the environment prior to impact on a receptor. The criteria against which pollutant concentrations are judged have also been subject to simplifying assumptions. As a result, SAM/IA is designed for use by experienced and qualified project officer and environmental assessment contractor personnel who will, on a case-by-case basis, review these assumptions to ensure the correct application of the model. In addition, at the time of this report, many pollutants exist for which MATEs have not yet been established. The user must, therefore, exercise judgment in flagging these omissions and bringing them to the attention of the EPA in terms of :

- Their importance to the particular environmental assessment being conducted
- Requirements for the continuing development of additional MATE values

These user comments will prove invaluable in the further development of the SAM/ETTA/MEG system.

SECTION 2

SOURCE ANALYSIS MODEL FOR RAPID SCREENING OF CONTROL OPTIONS

2.1 INTRODUCTION TO SAM

The use of a Source Analysis Model (SAM) for rapid screening of control options provides the environmental assessment community with a workbook format which identifies input data requirements and guides the user through a set of calculations. These calculations provide a quantitative means of assessing the pollution potential of a source and of control options.

The SAM format focuses on each separate effluent stream which arises during an energy production or industrial process. Such streams may exist because of the process itself or may arise because of the application of pollution control technology to a process-generated effluent. Examples of the former are:

- Flue gas and bottom ash emissions from a utility boiler
- H_2S, mercury and arsenic emissions from certain steam-dominated geothermal wells
- Hydrocarbon emissions at petrochemical refineries

Examples of the latter are:

- Hopper ash from baghouses or electrostatic precipitators
- Scrubber-generated sludge

Each use of the SAM format assumes a specific set of effluent streams which exit from the process itself or from the control technology in use. The format then examines the extent or amount of environmental impact which results, utilizing information on specific substances of concern determined from sampling data. SAM/IA includes formats for using either Level 1 or Level 2 sampling data in keeping with EPA's phased approach to comprehensive sampling and analysis.

In the phased approach to environmental assessment, Level 1 is the initial emission analysis and is used to distinguish very hazardous effluent streams from those which are less hazardous or are relatively innocuous. Level 1 data, consisting of identified organic classes of compounds and inorganic elements, generates the semiquantitative information which is then used to select the detailed and specific analyses required in Level 2.

SAMs can be used to do one or more of the following:

- Rank effluent streams. In this application, the SAM is used to compare the toxic-unit rate of discharge into each effluent stream; these toxic-unit summations can then be ranked by magnitude. Examination of the relative magnitudes generated by different streams immediately shows the relative hazard of the different effluent streams.
- Establish specific Level 2 and additional Level 3 sampling and analysis priorities in performing environmental assessments
- Determine problem pollutants and pollutant priorities. In this application, use of the SAM can lead to an understanding of which pollutants are most likely to cause major environmental impact because they remain poorly controlled under all equipment options currently available.
- Determine which control technology options are the most effective. In this application, the SAM is used to examine a given process stream with first one and then another control approach. The impact of alternative control equipment choices can be compared on the basis of:
    - The differing reductions which can be expected to occur in the original process stream pollutant emissions

  - The ways in which concentration of certain pollutants into particular control equipment effluent streams will occur

- Determine the need for control/disposal technology development

Straightforward application of the proper SAM format can, therefore, be used to accomplish a variety of goals.

In the simplest SAM, designated SAM/IA, effluent streams from any process or applicable controls are not assumed to interact with the external environment (i.e., transport of the components in the effluent stream to the external environment occurs without transformation of these components). No assumption is made about pollutant-specific dispersion, but it is assumed that such dispersion from the source to a receptor would, in almost all cases, be equal to, or greater than, the safety factors normally applied to acute (short-term exposure) toxicity data to convert them to estimated safe low-level, longer-term chronic ambient exposure levels.

SAM/IA thus:

- Is on an effluent concentration basis
- Uses only one potential assessment alternative (the MATE)
- Does not include transport/transformation analysis
- Includes only degree of hazard/toxic-unit discharge calculations

2.2 SAM/IA CALCULATION PROCEDURE

The general procedure to be followed when using SAM/IA for a given source and control option is described and explained below. A detailed description of how to fill out the forms (i.e., a user's handbook) appears in Section 2.4.

A key feature of SAM/IA is the individual comparison of process effluent stream (1) sample fractions (in Level 1), or (2) specific pollutant species (in Level 2), to the MATE goals. MATE values have been created for most of the 650 substances on the MEG pollutant list based upon health or ecological effects reference data. The assumption is made that the concentrations of pollutants in gas, liquid or solid effluent streams should not exceed MATE values which are estimated to minimize acute (short-term exposure) toxic effects.

The steps included in the SAM/IA approach are:

1. Identify specific sources within the overall system or process
2. Identify the various effluent streams from that source. Each gas, liquid or solid waste discharge is included as a separate effluent stream.
3. Determine the concentration of each sample fraction (Level 1) or specific pollutant species (Level 2) to be considered in each effluent stream. In Level 1 assessments, the set of species potentially present which would lead to hazard is established at this point for each sample fraction.
4. Each sample fraction or specific pollutant concentration in a given effluent stream is then divided by its corresponding health-based MATE. This quantity is, henceforth, called a "degree of hazard" (H). A second quotient is formed using the corresponding ecological MATE.*
5. At this point, flags (i.e., checkmarks) are noted on the form for each pollutant entry whose health or ecological degree of hazard (H) is greater than unity. These flags have been put on the form specifically for later ease in spotting potential problem pollutants. Their presence should be noted and assessed in any report.
6. The final calculation for each pollutant species or sample fraction in each stream takes the product of its degree of hazard (H) and the effluent stream flowrate to establish health (or ecological) toxic unit discharge rates (TUDR).

---

*Both health and ecological MATEs may be known. If so, both should be compared to the pollutant concentration.

7. The total stream degree of hazard is then calculated as the sum of the H's for each pollutant. Further, the total stream TUDR is calculated by summing the individual pollutant entry toxic unit discharge rates.

8. Degrees of Hazard and Toxic Unit Discharge Rates are then grouped and summed by discharge media (i.e., the H's and TUDRs for all gaseous, water and solid effluent streams are listed and summed for each medium)

9. Finally, if a Level 1 assessment is being performed, any additional data which can be used to rule out the presence of chemical species is noted in the sample fraction versus species lists in Appendix A

It should be noted that the third step requires an enumeration of all of the components of a given effluent stream which are to be considered. If a component is not included in the enumeration, any environmental impact which results from its discharge will not be included in the results.

The SAM/IA format will ordinarily be used for rapid screening of the difference between an uncontrolled process and the results of the application of various control options. Thus, it will ordinarily be applied to confined or ducted sources.

Such rapid screening requires understanding of the assumptions being made. These assumptions include:

- The user assumption that the ~650 substances currently in the MEG list as potential components of an effluent stream are the only ones which need to be included. (Unknown components may be sources of environmental impact which are modified or modifiable by the control technology and therefore Level 1 bioassay results will be important as a companion data base for interpretation of SAM/IA results.)
- The methodology assumption that dispersion of effluents will be adequate and will also offset any transformation to more toxic substances

- The MATE values (or the basic data they were developed from) are adequate
- No synergistic, or the-whole-is-greater-than-the-sum-of-its-parts, effects occur. The bioassay results are an important aid to interpretation of this point.

These assumptions are "built-in" to SAM/IA. No provision has been made for modification of the SAM/IA calculation method for specialized circumstances which are expected to be improbable. In many cases, perhaps most, the assumptions are conservative. However, these factors should be kept in mind in evaluating the need for more detailed assessment.

2.3 MATES FOR USE WITH THE SAM/IA FORMAT

MATE values for organic and inorganic compounds from fossil energy processes are being generated by Research Triangle Institute under EPA Contract No. 68-02-2612 (Reference 1).

MATEs describe very approximate concentrations of components or species in air, water or land effluents which may evoke significant damage responses in exposed humans or the ecology from limited duration exposures (i.e., less than 8 hours per day). MATEs are derived from TLVs, NIOSH recommendations, LD_{50}'s, LD_{LO}'s, LC_{50}'s, TD_{LO}'s, TLMs, Water Quality Criteria and Drinking Water Regulations.

Six MATEs may be listed for a single substance:

- Air (health and ecology based)
- Water (health and ecology based)
- Land (health and ecology based)

As many as six MATEs can be listed for each pollutant species or sample fraction in the worksheets. This allows comparisons of emissions to MATEs for air, water or land for studies of health or ecological effects. These MATEs are based on currently available data. They are viewed by EPA and RTI as providing a point of departure for further work, both within this topical area and as inputs to environmental assessments. With these caveats in mind, we caution the reader that there is no substitute for continuing critical review of their applicability on a case-by-case-basis. For further discussion of MATE values including their basis and limitation, the reader should consult Reference 1.

2.4 USER'S GUIDE TO THE SAM/IA FORMAT

SAM/IA has two forms on which to enter and process data. On the first, each process is analyzed into component effluent streams. Then, for each such stream, the appropriate* second form is used to compare each pollutant in each stream against an environmental goal, and to sum over all such comparisons to determine the degree of hazard which this stream poses. Further entries on the first form then allow summation of the degree of hazard over all gas, liquid or solid waste streams.

Blank SAM/IA format sheets are attached as Figures 2, 3 and 4. Figures 2(a) and 2(b) show the IA01 summary sheet. Figures 3(a), 3(b) and 3(c) show the IA02 Level 1 worksheets and Figures 4(a) and (b) show the IA02 Level 2 worksheets required for each effluent stream specified on the IA01 summary sheet.

2.4.1 Instructions for the Use of the Summary Sheet (Form IA01)

On the IA01 summary sheet (Figures 2(a) and 2(b)) use the first line to identify the source and applicable control options in sufficient detail to distinguish this case from all others considered. For example, one could specify the specific source, type and manufacturer of control units and their collection efficiencies, the assumed mode of operation (e.g., standard, nonstandard), etc.

On line 2, enter the process throughput or capacity. The units used will ordinarily be mass consumed or produced or energy consumed per unit time. For example, for a boiler, this would be the fuel consumed in megawatts (i.e., megajoules/sec) or MBtu/hr.

Use the space at line 3 to sketch a block diagram of the system under consideration. Include the source(s) and all associated control devices.

---

*i.e., appropriate to a Level 1 and Level 2 assessment. (A different form is used for each level.)

Figure 2(a). IA01 Summary sheet, side 1.

SAM/IA SUMMARY SHEET

Form IA01

1. SOURCE AND APPLICABLE CONTROL OPTIONS

2. PROCESS THROUGHPUT OR CAPACITY

3. USE THIS SPACE TO SKETCH A BLOCK DIAGRAM OF THE SOURCE AND CONTROL ITEMS SHOWING ALL EFFLUENT STREAMS. INDICATE EACH STREAM WITH A CIRCLED NUMBER USING 101-199 FOR GASEOUS STREAMS, 201-299 FOR LIQUID STREAMS, AND 301-399 FOR SOLID WASTE STREAMS.

4. LIST AND DESCRIBE GASEOUS EFFLUENT STREAMS USING RELEVANT NUMBERS FROM STEP 3.

101

102

103

104

105

106

107

5. LIST AND DESCRIBE LIQUID EFFLUENT STREAMS USING RELEVANT NUMBERS FROM STEP 3.

201

202

203

204

205

206

6. LIST AND DESCRIBE SOLID WASTE EFFLUENT STREAMS USING RELEVANT NUMBERS FROM STEP 3.

301

302

303

304

305

306

7. IF YOU ARE PERFORMING A LEVEL 1 ASSESSMENT, COMPLETE THE IA02-LEVEL 1 FORM FOR EACH EFFLUENT STREAM LISTED ABOVE. IF YOU ARE PERFORMING A LEVEL 2 ASSESSMENT, COMPLETE THE IA02-LEVEL 2 FORM FOR EACH EFFLUENT STREAM LISTED ABOVE.

Figure 2(b). IA01 Summary sheet, side 2.

8. LIST SUMS FROM LINE 7, FORMS IA02, IN TABLE BELOW

DEGREE OF HAZARD AND TOXIC UNIT DISCHARGE RATES BY EFFLUENT STREAM

GASEOUS					LIQUID					SOLID WASTE				
STREAM CODE	DEGREE OF HAZARD		TOXIC UNIT DISCHARGE RATES		STREAM CODE	DEGREE OF HAZARD		TOXIC UNIT DISCHARGE RATES		STREAM CODE	DEGREE OF HAZARD		TOXIC UNIT DISCHARGE RATES	
	HEALTH BASED	ECOL. BASED	HEALTH BASED	ECOL. BASED		HEALTH BASED	ECOL. BASED	HEALTH BASED	ECOL. BASED		HEALTH BASED	ECOL. BASED	HEALTH BASED	ECOL. BASED
	—	—	(m^3/sec)			—	—	(l/sec)			—	—	(g/sec)	
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O

9. SUM SEPARATELY GASEOUS, LIQUID AND SOLID WASTE STREAM DEGREES OF HAZARD FROM TABLE AT LINE 8 (I.E., SUM COLUMNS)

TOTAL DEGREE OF HAZARD

	HEALTH-BASED	ECOLOGICAL-BASED
GASEOUS	(Σ COL. B) 9A	(Σ COL. C) 9A'
LIQUID	(Σ COL. G) 9B	(Σ COL. H) 9B'
SOLID WASTE	(Σ COL. L) 9C	(Σ COL. M) 9C'

10. SUM SEPARATELY GASEOUS, LIQUID AND SOLID WASTE STREAM TOXIC UNIT DISCHARGE RATES FROM TABLE AT LINE 8 (I.E., SUM COLUMNS)

TOTAL TOXIC UNIT DISCHARGE RATES

	HEALTH-BASED	ECOLOGICAL-BASED
GASEOUS (m^3/sec)	(Σ COL. D) 10A	(Σ COL. E) 10A'
LIQUID (l/sec)	(Σ COL. I) 10B	(Σ COL. J) 10B'
SOLID WASTE (g/sec)	(Σ COL. N) 10C	(Σ COL. O) 10C'

11. NUMBER OF EFFLUENT STREAMS

GASEOUS 11A

LIQUID 11B

SOLID WASTE 11C

12. LIST POLLUTANT SPECIES KNOWN OR SUSPECTED TO BE EMITTED FOR WHICH A MATE IS NOT AVAILABLE.

SAM/IA WORKSHEET FOR LEVEL 1 Figure 3(a). IA02 Worksheet, Level 1. **Form IA02 Level 1**

1. SOURCE/CONTROL OPTION

Page 1 /

2. EFFLUENT STREAM

_____ CODE # _____________ NAME

3. EFFLUENT STREAM FLOW RATE

Q = ______________________

(gas = m³/sec — liquid = l/sec — solid waste = g/sec)

4. COMPLETE THE FOLLOWING TABLE FOR THE EFFLUENT STREAM OF LINE 2 (USE BACK OF FORM FOR SCRATCH WORK)

A	B	C	D	E	F	G	H	I	J	K	L
										TOXIC UNIT DISCHARGE RATE	
SAMPLE FRACTION	FRACTION CONCENTRATION	HEALTH MATE CONCENTRATION	ECOLOGICAL MATE CONCENTRATION	DEGREE OF HAZARD (HEALTH) (B/C)	ORDINAL POSITION IN HEALTH MATE TABLE	DEGREE OF HAZARD (ECOLOGICAL) (B/D)	ORDINAL POSITION IN ECOL. MATE TABLE	√ IF HEALTH MATE EXCEEDED	√ IF ECOL MATE EXCEEDED	(HEALTH BASED) (E x LINE 3)	(ECOLOGICAL BASED) (G x LINE 3)
UNITS				—	—	—	—	—	—		

IF MORE SPACE IS NEEDED, USE A CONTINUATION SHEET

5. EFFLUENT STREAM DEGREE OF HAZARD

HEALTH MATE BASED (Σ COL. E) 5a ____________

ECOLOGICAL MATE BASED (Σ COL. G) 5b ____________

(ENTER HERE AND AT LINE 8, FORM IA01)

6. NUMBER OF ENTRIES COMPARED TO MATES

HEALTH 6a____________

ECOLOGICAL 6b____________

7. TOXIC UNIT DISCHARGE SUM

HEALTH MATE BASED (Σ COL. K) 7a ____________

ECOLOGICAL MATE BASED (Σ COL. L) 7b ____________

(ENTER HERE AND AT LINE 8, FORM IA01)

Figure 3(b). IA02 Worksheet, notes.

NOTES

ASSUMPTIONS

LIST ALL ASSUMPTIONS MADE REGARDING FLOW RATE, EMISSION FACTORS AND MATE VALUES.

Figure 3(c). IA02 Continuation Worksheet, Level 1.

CONTINUATION SHEET FOR ITEM NO. 4, FORM IA02, LEVEL 1

Page /

SOURCE/CONTROL OPTION ______ EFFLUENT STREAM NO. ______

A	B	C	D	E	F	G	H	I	J	K	L
SAMPLE FRACTION	FRACTION CONCENTRATION	HEALTH MATE CONCENTRATION	ECOLOGICAL MATE CONCENTRATION	DEGREE OF HAZARD (HEALTH) (B/C)	ORDINAL POSITION IN HEALTH MATE TABLE	DEGREE OF HAZARD (ECOLOGICAL) (B/D)	ORDINAL POSITION IN ECOL. MATE TABLE	√ IF HEALTH MATE EXCEEDED	√ IF ECOL. MATE EXCEEDED	TOXIC UNIT DISCHARGE RATE	
										(HEALTH BASED) (E x LINE 3)	(ECOLOGICAL BASED) (G x LINE 3)
UNITS				—	—	—	—	—	—		

Figure 4(a). IA02 Worksheet Level 2.

SAM/IA WORKSHEET FOR LEVEL 2

Form IA02 Level 2

1. SOURCE/CONTROL OPTION

Page 1 /

2. EFFLUENT STREAM

______ ____________________

CODE # NAME

3. EFFLUENT STREAM FLOW RATE

Q = ______________

(gas = m³/sec — liquid = l/sec — solid = g/sec)

4. COMPLETE THE FOLLOWING TABLE FOR THE EFFLUENT STREAM OF LINE 2 (USE BACK OF FORM FOR SCRATCH WORK)

A		B	C	D	E	F	G	H	I	J
									TOXIC UNIT DISCHARGE RATE	
POLLUTANT SPECIES	CATEGORY	POLLUTANT CONCENTRATION	HEALTH MATE CONCENTRATION	ECOLOGICAL MATE CONCENTRATION	DEGREE OF HAZARD (HEALTH) (B/C)	DEGREE OF HAZARD (ECOLOGICAL) (B/D)	√ IF HEALTH MATE EXCEEDED	√ IF ECOL MATE EXCEEDED	(HEALTH BASED) (E x LINE 3)	(ECOLOGICAL BASED) (F x LINE 3)
UNITS	—				—	—	—	—		

IF MORE SPACE IS NEEDED, USE A CONTINUATION SHEET

5. EFFLUENT STREAM DEGREE OF HAZARD
   HEALTH MATE BASED (Σ COL. E) 5a __________
   ECOLOGICAL MATE BASED (Σ COL. F) 5b __________
   (ENTER HERE AND AT LINE 8, FORM IA01)

6. NUMBER OF POLLUTANTS COMPARED TO MATES
   HEALTH 6a __________
   ECOLOGICAL 6b __________

7. TOXIC UNIT DISCHARGE SUM
   HEALTH MATE BASED (Σ COL. I) 7a __________
   ECOLOGICAL MATE BASED (Σ COL. J) 7b __________
   (ENTER HERE AND AT LINE 8, FORM IA01)

CONTINUATION SHEET FOR ITEM NO. 4, FORM IA02, LEVEL 2

Page /

SOURCE/CONTROL OPTION ______________________ EFFLUENT STREAM NO. ______

	A	B	C	D	E	F	G	H	I	J
POLLUTANT SPECIES	CATEGORY	POLLUTANT CONCENTRATION	HEALTH MATE CONCENTRATION	ECOLOGICAL MATE CONCENTRATION	DEGREE OF HAZARD (HEALTH) (B/C)	DEGREE OF HAZARD (ECOLOGICAL) (B/D)	√ IF HEALTH MATE EXCEEDED	√ IF ECOL MATE EXCEEDED	TOXIC UNIT DISCHARGE RATE	
									(HEALTH BASED) (E x LINE 3)	(ECOLOGICAL BASED) (F x LINE 3)
UNITS	—				—	—	—	—		

Figure 4(b). IA02 Continuation Worksheet, Level 2.

An additional page may be used as an atttachment. Show all effluent streams, and number those which discharge to the environment. Use the numbers 100 to 199 for gaseous discharges, 200 to 299 for liquid discharges and 300 to 399 for solid waste discharges.

On line 4, list gaseous effluent streams as numbered in the sketch in line 3.

On line 5, list liquid effluent streams as numbered in the sketch in line 3.

On line 6, list solid effluent streams as numbered in the sketch in line 3.

Next, as stated in line 7 of Form IA01, for each effluent stream listed in lines 4, 5, and 6, complete an appropriate IA02 form. Note that different forms are used for Level 1 and Level 2 assessments. When these forms are complete, return to line 8 on Form IA01. At this point, the degree of hazard and the toxic unit discharge rate will be known for each pollutant identified in each stream, and overall values for each stream as a whole will have been determined.

At line 8 of Form IA01 (see Figure 2(b)), list effluent stream code numbers and associated ecological and health-based degrees of hazard (from lines 5a and 5b of Form IA02) and toxic unit discharge rates (from lines 7a and 7b of Form IA02).

For line 9, sum the health-based degrees of hazard for gaseous, liquid and solid effluent streams separately. Enter the results on lines 9a, b and c, respectively.

Similarly, sum the ecological-based degrees of hazard for gaseous, liquid and solid effluent streams separately and enter them on lines 9a', 9b' and 9c', respectively.

On line 10, sum the health-based toxic unit discharge rates for gaseous, liquid and solid effluent streams separately. Enter the results on lines 10a, b and c, respectively.

Similarly, sum the ecological-based toxic unit discharge rates for gaseous, liquid and solid effluent streams separately and enter them on lines 10a', 10b' and 10c', respectively.

At line 11, enter the number of gaseous, liquid and solid effluent streams in lines 11a, 11b and 11c, respectively.

Finally, at line 12, list pollutant species known or suspected to be emitted for which a MATE is not available.

This completes the discussion of Form IA01.

2.4.2 Instructions for the Use of the Worksheet (Form IA02)

Two different versions of Form IA02 are available; the first is appropriate for use when a Level 1 assessment is underway, the second is appropriate for use in Level 2 assessments. Level 1 assessments require knowledge of the process stream sample fraction concentrations. Level 2 assessments require knowledge of the concentrations of the specific pollutant species which are being considered.

Choose and complete the applicable worksheet for the effluent stream which is to be considered.

2.4.2.1 Completion of Form IA02 — Level 1

On line 1 (Figures 3(a), 3(b) and 3(c)) fill in the system description as in line 1, Form IA01. At line 2, enter the code number and description of the effluent stream to be evaluated on this page (i.e., one of the streams listed on lines 4, 5, and 6 on Form IA01).

Next, enter the flowrate of this effluent stream in appropriate units at line 3. The appropriate unit for gaseous streams is cubic meters per second (m^3/s); for liquid streams, liters per second (l/s); and for solid streams, grams per second (g/s).

Line 4 requires the completion of a table of data. In column A, list all sample fractions known to be present in this effluent stream which are in the MEG pollutant list.

In column B the measured concentration of each sample fraction in the effluent stream is entered.

The "health-based MATE concentration" (for column C) and "ordinal table position" (for column F) are determined by the following procedure:

> Look up the sample fraction name in column 1 of the key to the lists, Table A-1 in Appendix A. The right half of this key lists the health-based MATE value which is to be entered in column C of Form IA02. (Choose the value appropriate for the medium: gaseous, liquid or solid waste.) The left half of the key then refers to another list in Appendix A. Go to this list and choose, from its third column, the ordinal number of the last species in the sample fraction of interest whose MATE concentration is less than or equal to the measured sample concentration. Enter this number in column F of Form IA02. (For cases where all MATEs exceed the sample concentration, enter a blank (--). Many sample fractions contain compounds for which MATEs are not yet available (N). To be conservative, treat N as zero and enter the ordinal number of the last species with an N if all known MATEs exceed the sample concentration.) If a decision is made later to perform a Level 2 assessment, only those species listed (from the species in the first line to the species whose line number was just entered) need to be considered for inclusion in the Level 2 assessment.*

Repeat this procedure for ecological MATES to provide the entries for column D of Form IA02 and the ordinal list positions for column H.

---

*Additional data, such as IR spectra, available at Level 1 may be used to rule out the presence of some of these species. This is discussed further in Section 2.4.3.

Note that the ordinal positions established for Level 2 for health and ecology-based determinations need not be identical. Further, the chemical species in a certain sample fraction for which Level 2 must be performed need not be the same for health and ecological considerations.

In column E, calculate the degree of health hazard (H) due to each pollutant as (for a given line):

$$H(\text{health}) = \frac{\text{Fraction concentration}}{\text{health MATE}}, \text{ or column E} = \frac{\text{column B}}{\text{column C}}$$

Similarly for column G calculate the degree of ecological hazard due to this pollutant as:

$$H(\text{ecological}) = \frac{\text{Fraction concentration}}{\text{ecological MATE}}, \text{ or column G} = \frac{\text{column B}}{\text{column D}}$$

In column I, enter a checkmark if the health MATE is exceeded (i.e., column E > 1). Similarly, in column J, enter a checkmark if the ecological MATE is exceeded (i.e., column F > 1).

For column K, calculate a health-based toxic unit discharge rate for each as "degree of health hazard" (H) times "stream flowrate:"

TUDR(health) = H(health) x stream flowrate, or

column K = (column E) x (line 3)

Similarly, for column L calculate an ecological-based toxic unit discharge rate for each pollutant as degree of ecological hazard times flowrate: i.e.,

TUDR(ecological) = H(ecological) x stream flowrate, or

column L = (column G) x (line 3)

Next, at line 5a, calculate the total effluent degree of hazard (health-MATE based) as the sum of all the individual pollutant degree of hazard values for the stream: i.e., sum column E including values on any continuation sheets) and enter the sum on line 5a. Enter the total ecological-MATE based degree of hazard (i.e., sum column G) on line 5b.

Further enter this health-based value on line 8, Form IA01 in column B for gaseous, G for liquid or L for solid effluent streams. Similarly, enter the ecological-based degree of hazard sum in column C, H or M on line 8, Form IA01.

At line 6 count the number of sample fractions, N, listed in column A, for which MATE values exist. Enter the number of sample fractions with health MATE values at line 6a and enter the number of sample fractions with ecological-based MATEs at line 6b. At line 7 compute the sum of health-based TUDR: i.e., sum column K and enter the result at line 7a. Next, sum the ecological-based TUDR (column L) and enter the result at line 7b.

Finally, rewrite the result at line 7a of Form IA02 on line 8, Form IA01 in column D, I or N for the health-based sum of TUDR; also rewrite the result at line 7b of Form IA02 on line 8, Form IA01, in column E, J, or O.

This completes the discussion of Form IA02 as used in Level 1.

2.4.2.2 Completion of Form IA02 — Level 2

Completion of Form IA02 for a Level 2 assessment requires knowledge of the concentrations of the specific pollutant species which are to be considered for the stream.

On line 1 (Figure 4(a)) fill in the system description as in line 1, Form IA01. At line 2, enter the code number and description of the effluent stream to be evaluated on this page (i.e., one of the streams listed on lines 4, 5, and 6 on Form IA01).

Next, enter the flowrate of this effluent stream in appropriate units at line 3. The appropriate unit for gaseous streams is cubic meters per second (m^3/s); for liquid streams, liters per second (l/s); and for solid streams, grams per second (g/s).

Line 4 requires the completion of a table of data. In column A, list all pollutant species known to be present in this effluent stream which are in the MEG pollutant list.

In addition, in column A enter the chemical category for each pollutant species to be considered. Chemical categories are listed in Appendix A Lists 7 and 8.

In column B the measured concentration of each pollutant in the effluent stream is entered. If actual (measured) concentrations are not known an alternative of lesser preference is to utilize emission factor data to calculate the concentration.

For column C, enter a health-based MATE value for each pollutant in column A. (If a health-based MATE is not available, flag this pollutant on line 12 of Form IA01.)

For column D, follow the directions for column C but use ecological-based MATE values.

In column E, calculate the degree of health hazard (H) due to each pollutant as (for a given line):

$$\text{H(health)} = \frac{\text{pollutant concentration}}{\text{health MATE}}, \text{ or column E} = \frac{\text{column B}}{\text{column C}}$$

Similarly for column F, calculate the degree of ecological hazard due to this pollutant as:

$$\text{H(ecological)} = \frac{\text{pollutant concentration}}{\text{ecological MATE}}, \text{ or column F} = \frac{\text{column B}}{\text{column D}}$$

In column G, enter a checkmark if the health MATE is exceeded (i.e., column E > 1). Similarly in column H, enter a checkmark if the ecological MATE is exceeded (i.e., column F > 1).

For column I, calculate a health-based toxic unit discharge rate for each pollutant as "degree of health hazard" (H) times "stream flowrate:"

$$\text{TUDR(health)} = \text{H(health)} \times \text{stream flowrate, or}$$

$$\text{column I} = \text{(column E)} \times \text{(line 3)}$$

Similarly, for column J calculate an ecological-based toxic unit discharge rate for each pollutant as degree of ecological hazard times flowrate: i.e.,

$$\text{TUDR(ecological)} = \text{H(ecological)} \times \text{stream flowrate, or}$$

$$\text{column J} = \text{(column F)} \times \text{(line 3)}$$

Next, at line 5a, calculate the total effluent degree of hazard (health-MATE based) as the sum of all the individual pollutant degree of hazard values for the stream, i.e., sum column E (including values on any continuation sheets) and enter the sum on line 5a.

And, similarly, for line 5b, calculate the total effluent degree of hazard (ecological-MATE based) as the sum of all the individual pollutant degree of hazard values for the stream, i.e., sum column F (including values on any continuation sheets) and enter the sum on line 5b.

In addition, enter the health-based sum on line 8, Form IA01 in column B, G or L for gaseous, liquid or solid effluent streams, respectively. Similarly, enter the ecological-based degree of hazard sum in column C, H or M.

At line 6 count the number of pollutants, N, listed in column A, for which MATE values exist. Enter the number of species with health-based MATE values at line 6a and enter the number of species with ecological-based MATEs at line 6b. At line 7 compute the health-based toxic unit discharge sum by entering the total value of the health-based TUDR: i.e., sum column I and enter this sum on line 7a. Next, sum the ecological-based TUDR (i.e., sum column J) and enter this sum on line 7b.

Finally, enter this sum on line 8, Form IA01 in column D, I or N for the health-based TUDR; enter the sum from line 7b, the ecological-based sum, in column E, J or O.

This completes the discussion of Form IA02 as used in Level 2 assessments.

2.4.3 Further Data to be Entered in Appendix A

After completing both forms in a Level 1 environmental assessment, any additional data known about the various sample fractions should be entered in the appropriate list in Appendix A. As an example, IR spectra determined during a Level 1 assessment may be used together with low resolution mass spectroscopy (LRMS) to rule out the presence of any hydroxyl-containing compounds with molecular weights greater than a certain value. If such compounds are still potentially present, as established by the concentration-determined ordinal number for the appropriate sample fraction tables, then the IR-LRMS data may be used to cross out additional compounds occurring in these lists between the first entry and the ordinal number position for that list. The rationale for the deletion of the compound from further consideration should be written to the right of the line for that compound.

SECTION 3

SAM/IA APPLICATION EXAMPLES

3.1 INTRODUCTION

In this section, four sets of illustrative examples of the application of the SAM/IA format are presented. As of the drafting of this report comprehensive Level 1 and Level 2 sampling and analysis results were not available for a specific source, but will become available in the near future. Data are available for only a few pollutants in the examples used.

The first example shows the SAM/IA technique applied to hypothetical Level 1 samples from a fluidized bed combustor.

The second example includes:

a. An uncontrolled wet bottom utility boiler with air and water-slurried flyash emissions

b. The addition of an ESP to case (a), with consequent removal of particulates and addition of solid wastes from the ESP

c. The addition of combustion modifications for NO_x control to case (b)

The third and fourth examples illustrate use of the format with process industries. The examples chosen are a glass melting furnace coupled to an annealing lehr and coke byproduct ovens with and without the application of control technology.

These examples are included to show how efficiently one may apply the SAM technique. Further, they demonstrate that useful information may be obtained even if only some of the effluent streams from a given process are considered.

In these examples, standard notation has been used whenever possible with the exception that numbers such as "1.2×10^5" are sometimes presented in computer format, i.e., as 1.2E5.

3.2 EXAMPLE 1 — A HYPOTHETICAL FLUIDIZED BED COMBUSTOR

Example 1 (Figures 5(a), 5(b), 5(c), 5(d)) show the application of the SAM/IA procedure to a hypothetical fluidized bed combustor (FBC). In an attempt to inject realism into the example, the following combination of data was created:

- A power generation capacity of 30 MW for the FBC (about the size of existing units)
- An approximation to the flue gas effluent stream flowrate of existing units
- Tentative Level 1 sampling data from a TRW study of the Battelle, Columbus, FBC

These data were used to fill out the SAM/IA forms.

This procedure illustrates the use of Table A-1 from the appendix and the accessory lists to which Table A-1 directs the user for specific sample fractions.

3.3 EXAMPLE 2 — UTILITY BOILER

Example 2a shows the application of the SAM/IA procedure to hypothetical Level 2 results from a utility boiler under three different methods of pollution control and is shown in Figures 6(a) through (6e). A wall-fired boiler with a capacity of 1110-MW thermal input (1.1×10^9 joules/sec) was chosen. Example 2a is an assessment of this unit under baseline operating conditions (i.e., no control techniques applied). The significant combustion-generated effluent streams in a boiler were considered to be the flue gas and the slurried bottom ash (References 2, 3, 4 and 5).

The second example (2b) adds a 99 percent efficient electrostatic precipitator and is shown in Figures 7(a) through 7(f). This reduces the amount of particulate in the flue gas, but results in the addition of a

Figure 5(a). Example 1.

SAM/IA SUMMARY SHEET

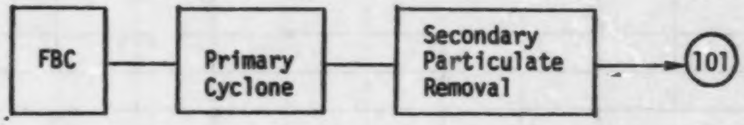
Form IA01

1. SOURCE AND APPLICABLE CONTROL OPTIONS

Fluidized Bed Combustor

2. PROCESS THROUGHPUT OR CAPACITY electrical output: 30 MW

3. USE THIS SPACE TO SKETCH A BLOCK DIAGRAM OF THE SOURCE AND CONTROL ITEMS SHOWING ALL EFFLUENT STREAMS. INDICATE EACH STREAM WITH A CIRCLED NUMBER USING 101-199 FOR GASEOUS STREAMS, 201-299 FOR LIQUID STREAMS, AND 301-399 FOR SOLID WASTE STREAMS.



4. LIST AND DESCRIBE GASEOUS EFFLUENT STREAMS USING RELEVANT NUMBERS FROM STEP 3.

101 Flue Gas
102
103
104
105
106
107

5. LIST AND DESCRIBE LIQUID EFFLUENT STREAMS USING RELEVANT NUMBERS FROM STEP 3.

201
202
203
204
205
206

6. LIST AND DESCRIBE SOLID WASTE EFFLUENT STREAMS USING RELEVANT NUMBERS FROM STEP 3.

301
302
303
304
305
306

7. IF YOU ARE PERFORMING A LEVEL 1 ASSESSMENT, COMPLETE THE IA02-LEVEL 1 FORM FOR EACH EFFLUENT STREAM LISTED ABOVE. IF YOU ARE PERFORMING A LEVEL 2 ASSESSMENT, COMPLETE THE IA02-LEVEL 2 FORM FOR EACH EFFLUENT STREAM LISTED ABOVE.

Figure 5(b). Example 1 (Continued).

8. LIST SUMS FROM LINE 7, FORMS IA02, IN TABLE BELOW

DEGREE OF HAZARD AND TOXIC UNIT DISCHARGE RATES BY EFFLUENT STREAM

GASEOUS					LIQUID					SOLID WASTE				
STREAM CODE	DEGREE OF HAZARD		TOXIC UNIT DISCHARGE RATES		STREAM CODE	DEGREE OF HAZARD		TOXIC UNIT DISCHARGE RATES		STREAM CODE	DEGREE OF HAZARD		TOXIC UNIT DISCHARGE RATES	
	HEALTH BASED	ECOL. BASED	HEALTH BASED	ECOL. BASED		HEALTH BASED	ECOL. BASED	HEALTH BASED	ECOL. BASED		HEALTH BASED	ECOL. BASED	HEALTH BASED	ECOL. BASED
	—	—	(m^3/sec)			—	—	(l/sec)			—	—	(g/sec)	
101	1.2E5	13.9	3.7E6	431										
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O

9. SUM SEPARATELY GASEOUS, LIQUID AND SOLID WASTE STREAM DEGREES OF HAZARD FROM TABLE AT LINE 8 (I.E., SUM COLUMNS)

	TOTAL DEGREE OF HAZARD	
	HEALTH-BASED	ECOLOGICAL-BASED
GASEOUS	(Σ COL. B) 9A 1.2E5	(Σ COL. C) 9A' 13.9
LIQUID	(Σ COL. G) 9B	(Σ COL. H) 9B'
SOLID WASTE	(Σ COL. L) 9C	(Σ COL. M) 9C'

10. SUM SEPARATELY GASEOUS, LIQUID AND SOLID WASTE STREAM TOXIC UNIT DISCHARGE RATES FROM TABLE AT LINE 8 (I.E., SUM COLUMNS)

	TOTAL TOXIC UNIT DISCHARGE RATES	
	HEALTH-BASED	ECOLOGICAL-BASED
GASEOUS (m^3/sec)	(Σ COL. D) 10A 3.7E6	(Σ COL. E) 10A' 431
LIQUID (l/sec)	(Σ COL. I) 10B	(Σ COL. J) 10B'
SOLID WASTE (g/sec)	(Σ COL. N) 10C	(Σ COL. O) 10C'

11. NUMBER OF EFFLUENT STREAMS

GASEOUS 11A One

LIQUID 11B

SOLID WASTE 11C

12. LIST POLLUTANT SPECIES KNOWN OR SUSPECTED TO BE EMITTED FOR WHICH A MATE IS NOT AVAILABLE.

No health MATE for SO$_3$; no ecological MATES for Be, Ba, Pb, As, SO$_3$, Se, Te, F$^-$, HCl, Cd.

SAM/IA WORKSHEET FOR LEVEL 1

Figure 5(c). Example 1 (Continued).

Form IA02 Level 1

Page 1 / 2

1. SOURCE/CONTROL OPTION

Fluidized Bed Combustor

2. EFFLUENT STREAM

101 (CODE #) Flue gas (NAME)

3. EFFLUENT STREAM FLOW RATE

Q = 31 m^3/sec

(gas = m^3/sec — liquid = l/sec — solid waste = g/sec)

4. COMPLETE THE FOLLOWING TABLE FOR THE EFFLUENT STREAM OF LINE 2 (USE BACK OF FORM FOR SCRATCH WORK)

A	B	C	D	E	F	G	H	I	J	K	L
										TOXIC UNIT DISCHARGE RATE	
SAMPLE FRACTION	FRACTION CONCENTRATION	HEALTH MATE CONCENTRATION	ECOLOGICAL MATE CONCENTRATION	DEGREE OF HAZARD (HEALTH) (B/C)	ORDINAL POSITION IN HEALTH MATE TABLE	DEGREE OF HAZARD (ECOLOGICAL) (B/D)	ORDINAL POSITION IN ECOL. MATE TABLE	√ IF HEALTH MATE EXCEEDED	√ IF ECOL MATE EXCEEDED	(HEALTH BASED) (E x LINE 3)	(ECOLOGICAL BASED) (G x LINE 3)
UNITS				—	—	—	—	—	—		
LC1	4200.	100.	--	42.	2	--	--	✓	--	1.3×10^{3}	--
LC2	605.	110.	--	5.5	8	--	--	✓	--	17	--
LC3	2400.	0.02	--	1.2×10^{5}	32	--	--	✓	--	3.7×10^{6}	--
LC4	1900.	990.	--	1.92	10	--	--	✓	--	59.5	--
LC5	610.	1300.	--	0.46	7	--	--	--	--	14.3	--
LC6	920.	170.	--	5.41	22	--	--	✓	--	168	--
LC7	1000.	100.	--	10.	7	--	--	✓	--	310.	--
LC8	11.	6000.	--	1.8×10^{-3}	2	--	--	--	--	0.06	--
LC12	11.	16000.	--	6.8×10^{-4}	--	--	--	--	--	0.02	--
SGC	No Data	--	--	--	--	--	--	--	--	--	--
C1-C6	No Data	--	--	--	--	--	--	--	--	--	--
C6-C12	No Data	--	--	--	--	--	--	--	--	--	--
32/Be	<0.026	2.	--	<0.013	--	--	--	--	--	<0.4	--
36/Ba	<1.3	500.	--	<0.0026	--	--	--	--	--	<0.08	--

IF MORE SPACE IS NEEDED, USE A CONTINUATION SHEET

5. EFFLUENT STREAM DEGREE OF HAZARD

HEALTH MATE BASED (Σ COL. E) 5a 1.2×10^{5}

ECOLOGICAL MATE BASED (Σ COL. G) 5b 13.9

(ENTER HERE AND AT LINE 8, FORM IA01)

6. NUMBER OF ENTRIES COMPARED TO MATES

HEALTH 6a 21

ECOLOGICAL 6b 3

7. TOXIC UNIT DISCHARGE SUM

HEALTH MATE BASED (Σ COL. K) 7a 3.7×10^{6}

ECOLOGICAL MATE BASED (Σ COL. L) 7b 431

(ENTER HERE AND AT LINE 8, FORM IA01)

Figure 5(d). Example 1 (Concluded).

CONTINUATION SHEET FOR ITEM NO. 4, FORM IA02, LEVEL 1

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SOURCE/CONTROL OPTION Fluidized Bed Combustor

EFFLUENT STREAM NO. 101

A	B	C	D	E	F	G	H	I	J	K	L
										TOXIC UNIT DISCHARGE RATE	
SAMPLE FRACTION	FRACTION CONCENTRATION	HEALTH MATE CONCENTRATION	ECOLOGICAL MATE CONCENTRATION	DEGREE OF HAZARD (HEALTH) (B/C)	ORDINAL POSITION IN HEALTH MATE TABLE	DEGREE OF HAZARD (ECOLOGICAL) (B/D)	ORDINAL POSITION IN ECOL. MATE TABLE	√ IF HEALTH MATE EXCEEDED	√ IF ECOL. MATE EXCEEDED	(HEALTH BASED) (E x LINE 3)	(ECOLOGICAL BASED) (G x LINE 3)
UNITS				—	—	—	—	—	—		
46/Pb	<1.3	150.	--	<0.0087	--	--	--	--	--	<0.27	--
47/NH_3	4.87×10^3	1.8×10^4	350.	0.27	--	13.9	--	--	✓	8.4	431
47/HCN	200.	1.1×10^4	3.4×10^4	0.018	--	0.0059	--	--	--	0.56	0.18
49/As	0.039	2.	--	0.02	--	--	--	--	--	0.62	--
53/SO_3	550	--	--	--	--	--	--	--	--	--	--
54/Se	<0.039	200.	--	$<2\times10^{-4}$	--	--	--	--	--	<0.006	--
55/Te	<0.26	100.	--	$<2.6\times10^{-3}$	--	--	--	--	--	<0.08	--
56/F^-	570	2.5×10^3	--	0.23	--	--	--	--	--	713.	--
57/HCl	5.5×10^4	7000.	--	7.9	--	--	--	✓	--	245.	--
82/Cd	<0.052	10.	--	<0.005	--	--	--	--	--	<0.16	--
83/Hg	0.009	50.	10.	1.8×10^{-4}	--	9×10^{-4}	--	--	--	0.006	0.03

Figure 6(a). Example 2(a).

SAM/IA SUMMARY SHEET

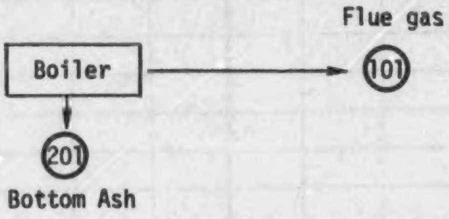
Form IA01

1. SOURCE AND APPLICABLE CONTROL OPTIONS

Wall-fired utility boiler/bit. coal fuel/uncontrolled

2. PROCESS THROUGHPUT OR CAPACITY 1.1×10^9 J/sec fuel input (1110 MW)

3. USE THIS SPACE TO SKETCH A BLOCK DIAGRAM OF THE SOURCE AND CONTROL ITEMS SHOWING ALL EFFLUENT STREAMS. INDICATE EACH STREAM WITH A CIRCLED NUMBER USING 101-199 FOR GASEOUS STREAMS, 201-299 FOR LIQUID STREAMS, AND 301-399 FOR SOLID WASTE STREAMS.



4. LIST AND DESCRIBE GASEOUS EFFLUENT STREAMS USING RELEVANT NUMBERS FROM STEP 3.

101 Flue gas
102
103
104
105
106
107

5. LIST AND DESCRIBE LIQUID EFFLUENT STREAMS USING RELEVANT NUMBERS FROM STEP 3.

201 Bottom ash slurry
202
203
204
205
206

6. LIST AND DESCRIBE SOLID WASTE EFFLUENT STREAMS USING RELEVANT NUMBERS FROM STEP 3.

301
302
303
304
305
306

7. IF YOU ARE PERFORMING A LEVEL 1 ASSESSMENT, COMPLETE THE IA02-LEVEL 1 FORM FOR EACH EFFLUENT STREAM LISTED ABOVE. IF YOU ARE PERFORMING A LEVEL 2 ASSESSMENT, COMPLETE THE IA02-LEVEL 2 FORM FOR EACH EFFLUENT STREAM LISTED ABOVE.

Figure 6(b). Example 2(a) (Continued).

8. LIST SUMS FROM LINE 7, FORMS IA02, IN TABLE BELOW

DEGREE OF HAZARD AND TOXIC UNIT DISCHARGE RATES BY EFFLUENT STREAM

GASEOUS					LIQUID					SOLID WASTE				
STREAM CODE	DEGREE OF HAZARD		TOXIC UNIT DISCHARGE RATES		STREAM CODE	DEGREE OF HAZARD		TOXIC UNIT DISCHARGE RATES		STREAM CODE	DEGREE OF HAZARD		TOXIC UNIT DISCHARGE RATES	
	HEALTH BASED	ECOL. BASED	HEALTH BASED	ECOL. BASED		HEALTH BASED	ECOL. BASED	HEALTH BASED	ECOL. BASED		HEALTH BASED	ECOL. BASED	HEALTH BASED	ECOL. BASED
	—	—	(m³/sec)			—	—	(l/sec)			—	—	(g/sec)	
101	789	1700	4.2E5	9.1E5	201	0.063	4.1	4.3	279					
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O

9. SUM SEPARATELY GASEOUS, LIQUID AND SOLID WASTE STREAM DEGREES OF HAZARD FROM TABLE AT LINE 8 (I.E., SUM COLUMNS)

TOTAL DEGREE OF HAZARD

	HEALTH-BASED	ECOLOGICAL-BASED
GASEOUS	(Σ COL. B) 9A 789	(Σ COL. C) 9A' 1700
LIQUID	(Σ COL. G) 9B 0.063	(Σ COL. H) 9B' 4.1
SOLID WASTE	(Σ COL. L) 9C	(Σ COL. M) 9C'

10. SUM SEPARATELY GASEOUS, LIQUID AND SOLID WASTE STREAM TOXIC UNIT DISCHARGE RATES FROM TABLE AT LINE 8 (I.E., SUM COLUMNS)

TOTAL TOXIC UNIT DISCHARGE RATES

	HEALTH-BASED	ECOLOGICAL-BASED
GASEOUS (m³/sec)	(Σ COL. D) 10A 4.2E5	(Σ COL. E) 10A' 9.1E5
LIQUID (l/sec)	(Σ COL. I) 10B 4.3	(Σ COL. J) 10B' 279
SOLID WASTE (g/sec)	(Σ COL. N) 10C	(Σ COL. O) 10C'

11. NUMBER OF EFFLUENT STREAMS

GASEOUS 11A one

LIQUID 11B one

SOLID WASTE 11C

12. LIST POLLUTANT SPECIES KNOWN OR SUSPECTED TO BE EMITTED FOR WHICH A MATE IS NOT AVAILABLE.

HC, particulates, NO_x, SO_x, Al, As, V, Zn, Zr, Pb

SAM/IA WORKSHEET FOR LEVEL 2

Figure 6(c). Example 2(a) (Continued).

Form IA02 Level 2

Page 1 /2

1. SOURCE/CONTROL OPTION

Wall-fired utility boiler/uncontrolled

2. EFFLUENT STREAM

101 — CODE #

Flue gas — NAME

3. EFFLUENT STREAM FLOW RATE

Q = 537 m^3/s

(gas = m^3/sec — liquid = l/sec — solid = g/sec)

4. COMPLETE THE FOLLOWING TABLE FOR THE EFFLUENT STREAM OF LINE 2 (USE BACK OF FORM FOR SCRATCH WORK)

A		B	C	D	E	F	G	H	I	J
POLLUTANT SPECIES	CATEGORY	POLLUTANT CONCENTRATION	HEALTH MATE CONCENTRATION	ECOLOGICAL MATE CONCENTRATION	DEGREE OF HAZARD (HEALTH) (B/C)	DEGREE OF HAZARD (ECOLOGICAL) (B/D)	√ IF HEALTH MATE EXCEEDED	√ IF ECOL MATE EXCEEDED	TOXIC UNIT DISCHARGE RATE (HEALTH BASED) (E x LINE 3)	TOXIC UNIT DISCHARGE RATE (ECOLOGICAL BASED) (F x LINE 3)
UNITS	-	μg/m^3	μg/m^3	μg/m^3	—	—	—	—	m^3/sec	m^3/sec
NO_x	47	6.59×10^5	9,000	—	73.2	—	✓	—	3.9×10^4	—
SO_x	53	2.66×10^6	13,000	—	205	—	✓	—	1.1×10^5	—
CO	42	4.49×10^4	40,000	120,000	1.12	0.37	✓	—	6×10^2	2×10^2
HC	—	1.8×10^3	—	—	—	—	—	—	—	—
Particulate	—	3.5×10^6	—	—	—	—	—	—	—	—
Al	38	4.49×10^5	5,200	—	86.3	—	✓	—	4.6×10^4	—
As	49	817	2	—	409	—	✓	—	2.2×10^5	—
Hg	83	14.7	50	10	0.29	1.47	—	✓	1.6×10^2	7.9×10^2
V	65	1.7×10^3	500	1	3.4	1.7×10^3	✓	✓	1.8×10^3	9.1×10^5
Zn	81	1.7×10^4	4,000	—	4.3	—	✓	—	2.3×10^3	—

IF MORE SPACE IS NEEDED, USE A CONTINUATION SHEET

5. EFFLUENT STREAM DEGREE OF HAZARD

HEALTH MATE BASED (Σ COL. E) 5a 789

ECOLOGICAL MATE BASED (Σ COL. F) 5b 1.7×10^3

(ENTER HERE AND AT LINE 8, FORM IA01)

6. NUMBER OF POLLUTANTS COMPARED TO MATES

HEALTH 6a 10

ECOLOGICAL 6b 3

7. TOXIC UNIT DISCHARGE SUM

HEALTH MATE BASED (Σ COL. I) 7a 4.2×10^5

ECOLOGICAL MATE BASED (Σ COL. J) 7b 9.1×10^5

(ENTER HERE AND AT LINE 8, FORM IA01)

CONTINUATION SHEET FOR ITEM NO. 4, FORM IA02, LEVEL 2 Figure 6(d). Example 2(a) (Continued).

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SOURCE/CONTROL OPTION Wall-fired utility boiler/uncontrolled

EFFLUENT STREAM NO. 101

	A	B	C	D	E	F	G	H	I	J
									TOXIC UNIT DISCHARGE RATE	
POLLUTANT SPECIES	CATEGORY	POLLUTANT CONCENTRATION	HEALTH MATE CONCENTRATION	ECOLOGICAL MATE CONCENTRATION	DEGREE OF HAZARD (HEALTH) (B/C)	DEGREE OF HAZARD (ECOLOGICAL) (B/D)	√ IF HEALTH MATE EXCEEDED	√ IF ECOL MATE EXCEEDED	(HEALTH BASED) (E x LINE 3)	(ECOLOGICAL BASED) (F x LINE 3)
UNITS	—	μg/m^3	μg/m^3	μg/m	—	—	—	—	m^3/sec	m^3/sec
Zr	63	2.1x10^3	5,000	—	0.42	—	—	—	2.3x10^2	—
Pb	46	874	150	—	5.8	—	✓	—	3x10^3	—

SAM/IA WORKSHEET FOR LEVEL 2 Figure 6(e). Example 2(a) (Concluded).

Form IA02 Level 2

Page 1 /1

1. SOURCE/CONTROL OPTION

Wall-fired utility boiler/uncontrolled

2. EFFLUENT STREAM

201 Bottom ash (slurry)

CODE # NAME

3. EFFLUENT STREAM FLOW RATE

Q = 68.2 l/sec

(gas = m³/sec — liquid = l/sec — solid = g/sec)

4. COMPLETE THE FOLLOWING TABLE FOR THE EFFLUENT STREAM OF LINE 2 (USE BACK OF FORM FOR SCRATCH WORK)

A		B	C	D	E	F	G	H	I	J
POLLUTANT SPECIES	CATEGORY	POLLUTANT CONCENTRATION	HEALTH MATE CONCENTRATION	ECOLOGICAL MATE CONCENTRATION	DEGREE OF HAZARD (HEALTH) (B/C)	DEGREE OF HAZARD (ECOLOGICAL) (B/D)	√ IF HEALTH MATE EXCEEDED	√ IF ECOL MATE EXCEEDED	TOXIC UNIT DISCHARGE RATE (HEALTH BASED) (E x LINE 3)	 (ECOLOGICAL BASED) (F x LINE 3)
UNITS	–	μg/l	μg/l	μg/l	—	—	—	—	l/sec	l/sec
Al	38	3.53×10^3	8×10^4	10^3	0.044	3.53	—	✓	3.0	241
As	49	2.14	250	50	9×10^{-3}	0.043	—	—	0.6	2.9
Hg	83	6×10^{-3}	10	250	6×10^{-4}	2.4×10^{-5}	—	—	0.04	1.6×10^{-3}
V	65	5.75	2,500	150	2.3×10^{-3}	3.8×10^{-2}	—	—	0.16	2.6
Zn	81	45	2.5×10^4	10^2	1.8×10^{-3}	0.45	—	—	0.12	30.7
Zr	63	25	7.5×10^4	—	3.3×10^{-4}	—	—	—	0.02	—
Pb	46	1.21	250	50	4.8×10^{-3}	2.4×10^{-2}	—	—	0.33	1.65

IF MORE SPACE IS NEEDED, USE A CONTINUATION SHEET

5. EFFLUENT STREAM DEGREE OF HAZARD

HEALTH MATE BASED (Σ COL. E) 5a 0.063

ECOLOGICAL MATE BASED (Σ COL. F) 5b 4.1

(ENTER HERE AND AT LINE 8, FORM IA01)

6. NUMBER OF POLLUTANTS COMPARED TO MATES

HEALTH 6a 7

ECOLOGICAL 6b 6

7. TOXIC UNIT DISCHARGE SUM

HEALTH MATE BASED (Σ COL. I) 7a 4.3

ECOLOGICAL MATE BASED (Σ COL. J) 7b 279

(ENTER HERE AND AT LINE 8, FORM IA01)

Figure 7(a). Example 2(b).

SAM/IA SUMMARY SHEET

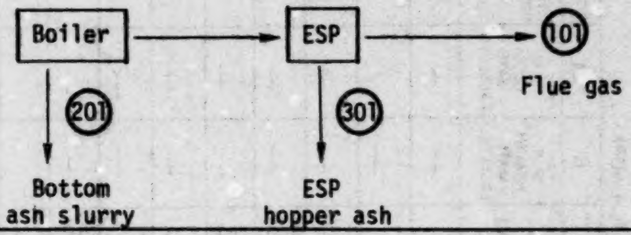
Form IA01

1. SOURCE AND APPLICABLE CONTROL OPTIONS

Wall-fired utility boiler/bit. coal fuel/electrostatic precipitator ($\eta = 99\%$)

2. PROCESS THROUGHPUT OR CAPACITY 1.1×10^9 J/s fuel input (1110 MW)

3. USE THIS SPACE TO SKETCH A BLOCK DIAGRAM OF THE SOURCE AND CONTROL ITEMS SHOWING ALL EFFLUENT STREAMS. INDICATE EACH STREAM WITH A CIRCLED NUMBER USING 101-199 FOR GASEOUS STREAMS, 201-299 FOR LIQUID STREAMS, AND 301-399 FOR SOLID WASTE STREAMS.



4. LIST AND DESCRIBE GASEOUS EFFLUENT STREAMS USING RELEVANT NUMBERS FROM STEP 3.

101 Flue gas
102
103
104
105
106
107

5. LIST AND DESCRIBE LIQUID EFFLUENT STREAMS USING RELEVANT NUMBERS FROM STEP 3.

201 Bottom ash slurry
202
203
204
205
206

6. LIST AND DESCRIBE SOLID WASTE EFFLUENT STREAMS USING RELEVANT NUMBERS FROM STEP 3.

301 ESP hopper ash
302
303
304
305
306

7. IF YOU ARE PERFORMING A LEVEL 1 ASSESSMENT, COMPLETE THE IA02-LEVEL 1 FORM FOR EACH EFFLUENT STREAM LISTED ABOVE. IF YOU ARE PERFORMING A LEVEL 2 ASSESSMENT, COMPLETE THE IA02-LEVEL 2 FORM FOR EACH EFFLUENT STREAM LISTED ABOVE.

Figure 7(b). Example 2(b) (Continued).

8. LIST SUMS FROM LINE 7, FORMS IA02, IN TABLE BELOW

DEGREE OF HAZARD AND TOXIC UNIT DISCHARGE RATES BY EFFLUENT STREAM

GASEOUS					LIQUID					SOLID WASTE				
STREAM CODE	DEGREE OF HAZARD		TOXIC UNIT DISCHARGE RATES		STREAM CODE	DEGREE OF HAZARD		TOXIC UNIT DISCHARGE RATES		STREAM CODE	DEGREE OF HAZARD		TOXIC UNIT DISCHARGE RATES	
	HEALTH BASED	ECOL. BASED	HEALTH BASED	ECOL. BASED		HEALTH BASED	ECOL. BASED	HEALTH BASED	ECOL. BASED		HEALTH BASED	ECOL. BASED	HEALTH BASED	ECOL. BASED
	—	—	(m^3/sec)			—	—	(l/sec)			—	—	(g/sec)	
101	4.6E2	7.3E2	2.5E5	3.9E5	201	0.063	4.1	4.3	279	301	1.3E3	6.0E4	2.3E5	1.1E7
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O

9. SUM SEPARATELY GASEOUS, LIQUID AND SOLID WASTE STREAM DEGREES OF HAZARD FROM TABLE AT LINE 8 (I.E., SUM COLUMNS)

	TOTAL DEGREE OF HAZARD	
	HEALTH-BASED	ECOLOGICAL-BASED
GASEOUS	(Σ COL. B) 9A 4.6E2	(Σ COL. C) 9A' 7.3E2
LIQUID	(Σ COL. G) 9B 0.063	(Σ COL. H) 9B' 4.1
SOLID WASTE	(Σ COL. L) 9C 1.3E3	(Σ COL. M) 9C' 6.0E4

10. SUM SEPARATELY GASEOUS, LIQUID AND SOLID WASTE STREAM TOXIC UNIT DISCHARGE RATES FROM TABLE AT LINE 8 (I.E., SUM COLUMNS)

	TOTAL TOXIC UNIT DISCHARGE RATES	
	HEALTH-BASED	ECOLOGICAL-BASED
GASEOUS (m^3/sec)	(Σ COL. D) 10A 2.5E5	(Σ COL. E) 10A' 3.9E5
LIQUID (l/sec)	(Σ COL. I) 10B 4.3	(Σ COL. J) 10B' 279
SOLID WASTE (g/sec)	(Σ COL. N) 10C 2.3E5	(Σ COL. O) 10C' 1.1E7

11. NUMBER OF EFFLUENT STREAMS

GASEOUS 11A one

LIQUID 11B one

SOLID WASTE 11C one

12. LIST POLLUTANT SPECIES KNOWN OR SUSPECTED TO BE EMITTED FOR WHICH A MATE IS NOT AVAILABLE.

HC, particulates, Zr, Al, As, Zn, NO_x, SO_x, Pb

SAM/IA WORKSHEET FOR LEVEL 2 Figure 7(c). Example 2(b) (Continued).

Form IA02 Level 2

1. SOURCE/CONTROL OPTION

Wall-fired utility boiler/electrostatic precipitator (η = 99%)

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2. EFFLUENT STREAM

101 — CODE #

Flue gas — NAME

3. EFFLUENT STREAM FLOW RATE

Q = 537 m^3/sec

(gas = m^3/sec — liquid = l/sec — solid = g/sec)

4. COMPLFTE THE FOLLOWING TABLE FOR THE EFFLUENT STREAM OF LINE 2 (USE BACK OF FORM FOR SCRATCH WORK)

A		B	C	D	E	F	G	H	I	J
POLLUTANT SPECIES	CATEGORY	POLLUTANT CONCENTRATION	HEALTH MATE CONCENTRATION	ECOLOGICAL MATE CONCENTRATION	DEGREE OF HAZARD (HEALTH) (B/C)	DEGREE OF HAZARD (ECOLOGICAL) (B/D)	√ IF HEALTH MATE EXCEEDED	√ IF ECOL MATE EXCEEDED	TOXIC UNIT DISCHARGE RATE (HEALTH BASED) (E x LINE 3)	TOXIC UNIT DISCHARGE RATE (ECOLOGICAL BASED) (F x LINE 3)
UNITS	-	µg/m^3	µg/m^3	µg/m^3	—	—	—	—	m^3/sec	m^3/sec
NO_x	47	6.6×10^5	9,000	—	73.3	—	✓	—	3.9×10^4	—
SO_x	53	2.66×10^6	13,000	—	205	—	✓	—	1.1×10^5	—
CO	42	4.49×10^4	40,000	1.2×10^5	1.12	0.4	✓	—	6×10^2	2×10^2
HC	—	1.8×10^3	—	—	—	—	—	—	—	—
Particulate	—	3.5×10^4	—	—	—	—	—	—	—	—
Al	38	1.8×10^5	5,200	—	34.6	—	✓	—	1.8×10^4	—
As	49	272	2	—	136	—	✓	—	7.3×10^4	—
Hg	83	13.9	50	10	0.28	1.4	—	✓	1.5×10^2	7.5×10^2
V	65	729	500	1	1.46	729	✓	✓	7.8×10^2	3.9×10^5
Zn	81	5.72×10^3	4,000	—	1.43	—	✓	—	7.7×10^2	—

IF MORE SPACE IS NEEDED, USE A CONTINUATION SHEET

5. EFFLUENT STREAM DEGREE OF HAZARD

HEALTH MATE BASED (Σ COL. E) 5a 4.6×10^2

ECOLOGICAL MATE BASED (Σ COL. F) 5b 7.3×10^2

(ENTER HERE AND AT LINE 8, FORM IA01)

6. NUMBER OF POLLUTANTS COMPARED TO MATES

HEALTH 6a 10

ECOLOGICAL 6b 3

7. TOXIC UNIT DISCHARGE SUM

HEALTH MATE BASED (Σ COL. I) 7a 2.5×10^5

ECOLOGICAL MATE BASED (Σ COL. J) 7b 3.9×10^5

(ENTER HERE AND AT LINE 8, FORM IA01)

CONTINUATION SHEET FOR ITEM NO. 4, FORM IA02, LEVEL 2 Figure 7(d). Example 2(b) (Continued). Page 2 / 2

SOURCE/CONTROL OPTION Wall-fired utility boiler/electrostatic precipitator (n=99%) EFFLUENT STREAM NO. 101

A		B	C	D	E	F	G	H	I	J
									TOXIC UNIT DISCHARGE RATE	
POLLUTANT SPECIES	CATEGORY	POLLUTANT CONCENTRATION	HEALTH MATE CONCENTRATION	ECOLOGICAL MATE CONCENTRATION	DEGREE OF HAZARD (HEALTH) (B/C)	DEGREE OF HAZARD (ECOLOGICAL) (B/D)	√ IF HEALTH MATE EXCEEDED	√ IF ECOL MATE EXCEEDED	(HEALTH BASED) (E x LINE 3)	(ECOLOGICAL BASED) (F x LINE 3)
UNITS	—	μg/m^3	μg/m^3	μg/m^3	—	—	—	—	m^3/sec	m^3/sec
Zr	63	5.3x10^2	5000	--	0.11	--	--	--	56.9	--
Pb	46	360	150	--	2.4	--	✓	--	1.3x10^3	--

Figure 7(e). Example 2(b) (Continued).

SAM/IA WORKSHEET FOR LEVEL 2

Page 1 / 1

1. SOURCE/CONTROL OPTION

Wall-fired utility boiler/electrostatic precipitator (η = 99%)

2. EFFLUENT STREAM

201 CODE # — Bottom ash (slurry) NAME

3. EFFLUENT STREAM FLOW RATE

Q = 68.2 l/sec

(gas = m³/sec — liquid = l/sec — solid = g/sec)

4. COMPLETE THE FOLLOWING TABLE FOR THE EFFLUENT STREAM OF LINE 2 (USE BACK OF FORM FOR SCRATCH WORK)

A		B	C	D	E	F	G	H	I	J
									TOXIC UNIT DISCHARGE RATE	
POLLUTANT SPECIES	CATEGORY	POLLUTANT CONCENTRATION	HEALTH MATE CONCENTRATION	ECOLOGICAL MATE CONCENTRATION	DEGREE OF HAZARD (HEALTH) (B/C)	DEGREE OF HAZARD (ECOLOGICAL) (B/D)	√ IF HEALTH MATE EXCEEDED	√ IF ECOL MATE EXCEEDED	(HEALTH BASED) (E x LINE 3)	(ECOLOGICAL BASED) (F x LINE 3)
UNITS	-	µg/l	µg/l	µg/l	—	—	—	—	l/sec	l/sec
Al	38	3.53×10^3	8×10^4	10^3	0.044	3.53	—	✓	3.0	241
As	49	2.14	250	50	9×10^{-3}	0.043	—	—	0.6	2.9
Hg	83	6×10^{-3}	10	250	6×10^{-4}	2.4×10^{-5}	—	—	0.04	1.6×10^{-3}
V	65	5.75	2,500	150	2.3×10^{-3}	3.8×10^{-2}	—	—	0.16	2.6
Zn	81	45	2.5×10^4	10^2	1.8×10^{-3}	0.45	—	—	0.12	30.7
Zr	63	25	7.5×10^4	—	3.3×10^{-4}	—	—	—	0.02	—
Pb	46	1.21	250	50	4.8×10^{-3}	2.4×10^{-2}	—	—	0.33	1.65

IF MORE SPACE IS NEEDED, USE A CONTINUATION SHEET

5. EFFLUENT STREAM DEGREE OF HAZARD

HEALTH MATE BASED (Σ COL. E) 5a 0.063

ECOLOGICAL MATE BASED (Σ COL. F) 5b 4.1

(ENTER HERE AND AT LINE 8, FORM IA01)

6. NUMBER OF POLLUTANTS COMPARED TO MATES

HEALTH 6a 7

ECOLOGICAL 6b 6

7. TOXIC UNIT DISCHARGE SUM

HEALTH MATE BASED (Σ COL. I) 7a 4.3

ECOLOGICAL MATE BASED (Σ COL. J) 7b 279

(ENTER HERE AND AT LINE 8, FORM IA01)

SAM/IA WORKSHEET FOR LEVEL 2

Figure 7(f). Example 2(b) (Concluded).

Form IA02 Level 2

1. SOURCE/CONTROL OPTION

Wall-fired utility boiler/electrostatic precipitator (η = 99%)

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2. EFFLUENT STREAM

301 ESP hopper ash

CODE # NAME

3. EFFLUENT STREAM FLOW RATE

Q = 186 g/sec

(gas = m³/sec — liquid = l/sec — solid = g/sec)

4. COMPLETE THE FOLLOWING TABLE FOR THE EFFLUENT STREAM OF LINE 2 (USE BACK OF FORM FOR SCRATCH WORK)

A		B	C	D	E	F	G	H	I	J
POLLUTANT SPECIES	CATEGORY	POLLUTANT CONCENTRATION	HEALTH MATE CONCENTRATION	ECOLOGICAL MATE CONCENTRATION	DEGREE OF HAZARD (HEALTH) (B/C)	DEGREE OF HAZARD (ECOLOGICAL) (B/D)	√ IF HEALTH MATE EXCEEDED	√ IF ECOL MATE EXCEEDED	TOXIC UNIT DISCHARGE RATE	
									(HEALTH BASED) (E x LINE 3)	(ECOLOGICAL BASED) (F x LINE 3)
UNITS	—	µg/g	µg/g	µg/g	—	—	—	—	g/sec	g/sec
Al	38	7.74×10^4	160	2	4.8×10^2	3.9×10^4	✓	✓	9×10^4	7.2×10^6
As	49	157	0.5	0.1	314	1.6×10^3	✓	✓	5.8×10^4	2.9×10^5
Hg	83	0.22	0.02	0.5	11	0.44	✓	—	2×10^3	82
V	65	280	5	0.3	56	933	✓	✓	10^4	1.7×10^5
Zn	81	3.3×10^3	50	0.2	66	1.7×10^4	✓	✓	1.2×10^4	3.1×10^6
Zr	63	458	15	—	30.5	—	✓	—	5.7×10^3	—
Pb	46	148	0.5	0.1	296	1.5×10^3	✓	✓	5.5×10^4	2.8×10^5

IF MORE SPACE IS NEEDED, USE A CONTINUATION SHEET

5. EFFLUENT STREAM DEGREE OF HAZARD

HEALTH MATE BASED (Σ COL. E) 5a 1.3×10^3

ECOLOGICAL MATE BASED (Σ COL. F) 5b 6×10^4

(ENTER HERE AND AT LINE 8, FORM IA01)

6. NUMBER OF POLLUTANTS COMPARED TO MATES

HEALTH 6a 7

ECOLOGICAL 6b 6

7. TOXIC UNIT DISCHARGE SUM

HEALTH MATE BASED (Σ COL. I) 7a 2.3×10^5

ECOLOGICAL MATE BASED (Σ COL. J) 7b 1.1×10^7

(ENTER HERE AND AT LINE 8, FORM IA01)

third effluent stream — the precipitator bottom ash. The trace element distribution used is from Reference 6.

The final example (2c) retains the precipitator and adds low-excess-air (LEA) firing. It is shown in Figures 8(a) through 8(g). LEA reduces NO_x by about 20 percent but simultaneously results in an increase in CO emissions. The CO level, however, is below the MATE for CO. The net result is a reduction in the rate of discharge of toxic units to the air.

The following table summarizes the three cases.

Case	Total Health-Based TUDR		
	Gas	Liquid	Solid
Baseline	4.2×10^5	4.3	--
ESP	2.5×10^5	4.3	2.3×10^5
ESP and LEA	2.4×10^5	4.3	2.3×10^5

Figure 8(a). Example 2(c).

SAM/IA SUMMARY SHEET

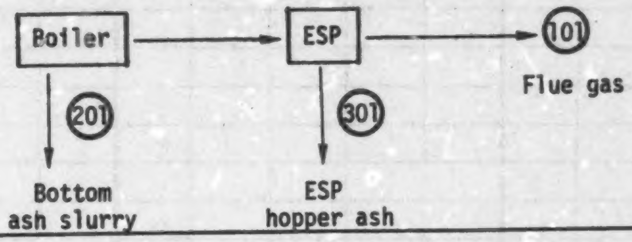
Form IA01

1. SOURCE AND APPLICABLE CONTROL OPTIONS

Wall-fired utility boiler/bit. coal fuel/electrostatic precipitator (η = 99%)/ low excess air firing.

2. PROCESS THROUGHPUT OR CAPACITY 1.1 x 10^9 J/sec fuel input (1110 MW)

3. USE THIS SPACE TO SKETCH A BLOCK DIAGRAM OF THE SOURCE AND CONTROL ITEMS SHOWING ALL EFFLUENT STREAMS. INDICATE EACH STREAM WITH A CIRCLED NUMBER USING 101-199 FOR GASEOUS STREAMS, 201-299 FOR LIQUID STREAMS, AND 301-399 FOR SOLID WASTE STREAMS.



4. LIST AND DESCRIBE GASEOUS EFFLUENT STREAMS USING RELEVANT NUMBERS FROM STEP 3.

101 Flue gas
102
103
104
105
106
107

5. LIST AND DESCRIBE LIQUID EFFLUENT STREAMS USING RELEVANT NUMBERS FROM STEP 3.

201 Bottom ash slurry
202
203
204
205
206

6. LIST AND DESCRIBE SOLID WASTE EFFLUENT STREAMS USING RELEVANT NUMBERS FROM STEP 3.

301 ESP hopper ash
302
303
304
305
306

7. IF YOU ARE PERFORMING A LEVEL 1 ASSESSMENT, COMPLETE THE IA02-LEVEL 1 FORM FOR EACH EFFLUENT STREAM LISTED ABOVE. IF YOU ARE PERFORMING A LEVEL 2 ASSESSMENT, COMPLETE THE IA02-LEVEL 2 FORM FOR EACH EFFLUENT STREAM LISTED ABOVE.

Figure 8(b). Example 2(c) (Continued).

8. LIST SUMS FROM LINE 7, FORMS IA02, IN TABLE BELOW

DEGREE OF HAZARD AND TOXIC UNIT DISCHARGE RATES BY EFFLUENT STREAM

GASEOUS					LIQUID					SOLID WASTE				
STREAM CODE	DEGREE OF HAZARD		TOXIC UNIT DISCHARGE RATES		STREAM CODE	DEGREE OF HAZARD		TOXIC UNIT DISCHARGE RATES		STREAM CODE	DEGREE OF HAZARD		TOXIC UNIT DISCHARGE RATES	
	HEALTH BASED	ECOL. BASED	HEALTH BASED	ECOL. BASED		HEALTH BASED	ECOL. BASED	HEALTH BASED	ECOL. BASED		HEALTH BASED	ECOL. BASED	HEALTH BASED	ECOL. BASED
	—	—	(m^3/sec)			—	—	(l/sec)			—	—	(g/sec)	
101	450	749	2.4E5	3.9E5	201	0.063	4.1	4.3	279	301	1.3E3	6.0E4	2.3E5	1.1E7
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O

9. SUM SEPARATELY GASEOUS, LIQUID AND SOLID WASTE STREAM DEGREES OF HAZARD FROM TABLE AT LINE 8 (I.E., SUM COLUMNS)

	TOTAL DEGREE OF HAZARD HEALTH-BASED	ECOLOGICAL-BASED
GASEOUS	(Σ COL. B) 9A 450	(Σ COL. C) 9A' 749
LIQUID	(Σ COL. G) 9B 0.063	(Σ COL. H) 9B' 4.1
SOLID WASTE	(Σ COL. L) 9C 1.3E3	(Σ COL. M) 9C' 6.0E4

10. SUM SEPARATELY GASEOUS, LIQUID AND SOLID WASTE STREAM TOXIC UNIT DISCHARGE RATES FROM TABLE AT LINE 8 (I.E., SUM COLUMNS)

	TOTAL TOXIC UNIT DISCHARGE RATES HEALTH-BASED	ECOLOGICAL-BASED
GASEOUS (m^3/sec)	(Σ COL. D) 10A 2.4E5	(Σ COL. E) 10A' 3.9E5
LIQUID (l/sec)	(Σ COL. I) 10B 4.3	(Σ COL. J) 10B' 279
SOLID WASTE (g/sec)	(Σ COL. N) 10C 2.3E5	(Σ COL. O) 10C' 1.1E7

11. NUMBER OF EFFLUENT STREAMS

GASEOUS 11A one

LIQUID 11B one

SOLID WASTE 11C one

12. LIST POLLUTANT SPECIES KNOWN OR SUSPECTED TO BE EMITTED FOR WHICH A MATE IS NOT AVAILABLE.

HC, particulates, Zr, Al, As, Zn, Pb, NO_x, SO_x

Figure 8(c). Example 2(c) (Continued).

SAM/IA WORKSHEET FOR LEVEL 2

Form IA02 Level 2

Page 1 / 2

1. SOURCE/CONTROL OPTION

Wall-fired utility boiler/electrostatic precipitator (η = 99%)/LEA firing

2. EFFLUENT STREAM

101 — CODE #
Flue gas — NAME

3. EFFLUENT STREAM FLOW RATE

Q = 524 m^3/s

(gas = m^3/sec — liquid = l/sec — solid = g/sec)

4. COMPLETE THE FOLLOWING TABLE FOR THE EFFLUENT STREAM OF LINE 2 (USE BACK OF FORM FOR SCRATCH WORK)

A		B	C	D	E	F	G	H	I	J
POLLUTANT SPECIES	CATEGORY	POLLUTANT CONCENTRATION	HEALTH MATE CONCENTRATION	ECOLOGICAL MATE CONCENTRATION	DEGREE OF HAZARD (HEALTH) (B/C)	DEGREE OF HAZARD (ECOLOGICAL) (B/D)	✓ IF HEALTH MATE EXCEEDED	✓ IF ECOL MATE EXCEEDED	TOXIC UNIT DISCHARGE RATE (HEALTH BASED) (E x LINE 3)	TOXIC UNIT DISCHARGE RATE (ECOLOGICAL BASED) (F x LINE 3)
UNITS	–	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	—	—	—	—	m^3/sec	m^3/sec
NO_x	47	5.2×10^5	9000	--	58	--	✓	--	3×10^4	--
SO_x	52	2.73×10^6	13000	--	210	--	✓	--	1.1×10^5	--
CO	42	9.2×10^4	40000	120000	2.31	0.77	✓	--	1210.	4×10^2
HC	--	1800	--	--	--	--	--	--	--	--
Particulate	--	3.6×10^4	--	--	--	--	--	--	--	--
Al	38	1.8×10^5	5200	--	34.6	--	✓	--	1.8×10^4	--
As	49	279	2	--	139.5	--	✓	--	7.3×10^4	--
Hg	83	14.3	50	10	0.286	1.43	--	✓	1.5×10^2	749
V	65	747	500	1	1.49	747	✓	✓	783	3.9×10^5
Zn	81	5.9×10^3	4000	--	1.48	--	✓	--	773	--

IF MORE SPACE IS NEEDED, USE A CONTINUATION SHEET

5. EFFLUENT STREAM DEGREE OF HAZARD

HEALTH MATE BASED (Σ COL. E) 5a 450
ECOLOGICAL MATE BASED (Σ COL. F) 5b 749
(ENTER HERE AND AT LINE 8, FORM IA01)

6. NUMBER OF POLLUTANTS COMPARED TO MATES

HEALTH 6a 10
ECOLOGICAL 6b 3

7. TOXIC UNIT DISCHARGE SUM

HEALTH MATE BASED (Σ COL. I) 7a 2.4×10^5
ECOLOGICAL MATE BASED (Σ COL. J) 7b 3.9×10^5
(ENTER HERE AND AT LINE 8, FORM IA01)

CONTINUATION SHEET FOR ITEM NO. 4, FORM IA02, LEVEL 2 Figure 8(d). Example 2(c) (Continued).

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SOURCE/CONTROL OPTION Wall-fired utility boiler/ESP (n=99%)/LEA firing EFFLUENT STREAM NO. 101

	A	B	C	D	E	F	G	H	I	J
POLLUTANT SPECIES	CATEGORY	POLLUTANT CONCENTRATION	HEALTH MATE CONCENTRATION	ECOLOGICAL MATE CONCENTRATION	DEGREE OF HAZARD (HEALTH) (B/C)	DEGREE OF HAZARD (ECOLOGICAL) (B/D)	√ IF HEALTH MATE EXCEEDED	√ IF ECOL MATE EXCEEDED	TOXIC UNIT DISCHARGE RATE	
									(HEALTH BASED) (E x LINE 3)	(ECOLOGICAL BASED) (F x LINE 3)
UNITS	—	μg/m^3	μg/m^3	μg/m^3	—	—	—	—	m^3/sec	m^3/sec
Zr	63	542	5000	--	0.11	--	--	--	57	--
Pb	46	369	150	--	2.46	--	✓	--	1.3x10^3	--

Figure 8(e). Example 2(c) (Continued).

NOTES

ASSUMPTIONS

LIST ALL ASSUMPTIONS MADE REGARDING FLOW RATE, EMISSION FACTORS AND MATE VALUES.

Assume low excess air firing operates at 117-percent theoretical air compared to 120-percent for baseline operation. The flowrate is:

$$\frac{117}{120}\ (537) = 524\ m^3/s$$

(This is a 15-percent reduction in excess air.)

SAM/IA WORKSHEET FOR LEVEL 2 Figure 8(f). Example 2(c) (Continued). **Form IA02 Level 2**

1. SOURCE/CONTROL OPTION

Wall-fired utility boiler/ESP (η = 99%)/LEA firing

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2. EFFLUENT STREAM

201 Bottom ash (slurry)

CODE # NAME

3. EFFLUENT STREAM FLOW RATE

Q = 68.2 l/sec

(gas = m³/sec — liquid = l/sec — solid = g/sec)

4. COMPLETE THE FOLLOWING TABLE FOR THE EFFLUENT STREAM OF LINE 2 (USE BACK OF FORM FOR SCRATCH WORK)

A		B	C	D	E	F	G	H	I	J
POLLUTANT SPECIES	CATEGORY	POLLUTANT CONCENTRATION	HEALTH MATE CONCENTRATION	ECOLOGICAL MATE CONCENTRATION	DEGREE OF HAZARD (HEALTH) (B/C)	DEGREE OF HAZARD (ECOLOGICAL) (B/D)	√ IF HEALTH MATE EXCEEDED	√ IF ECOL MATE EXCEEDED	TOXIC UNIT DISCHARGE RATE (HEALTH BASED) (E x LINE 3)	(ECOLOGICAL BASED) (F x LINE 3)
UNITS	–	µg/l	µg/l	µg/l	—	—	—	—	l/sec	l/sec
Al	38	3.53×10^3	8×10^4	10^3	0.044	3.53	—	✓	3.0	241
As	49	2.14	250	50	9×10^{-3}	0.043	—	—	0.6	2.9
Hg	83	6×10^{-3}	10	250	6×10^{-4}	2.4×10^{-5}	—	—	0.04	1.6×10^{-3}
V	65	5.75	2,500	150	2.3×10^{-3}	3.8×10^{-2}	—	—	0.16	2.6
Zn	81	45	2.5×10^4	10^2	1.8×10^{-3}	0.45	—	—	0.12	30.7
Zr	63	25	7.5×10^4	—	3.3×10^{-4}	—	—	—	0.02	—
Pb	46	1.21	250	50	4.8×10^{-3}	2.4×10^{-2}	—	—	0.33	1.65

IF MORE SPACE IS NEEDED, USE A CONTINUATION SHEET

5. EFFLUENT STREAM DEGREE OF HAZARD

HEALTH MATE BASED (Σ COL. E) 5a 0.063

ECOLOGICAL MATE BASED (Σ COL. F) 5b 4.1

(ENTER HERE AND AT LINE 8, FORM IA01)

6. NUMBER OF POLLUTANTS COMPARED TO MATES

HEALTH 6a 7

ECOLOGICAL 6b 6

7. TOXIC UNIT DISCHARGE SUM

HEALTH MATE BASED (Σ COL. I) 7a 4.3

ECOLOGICAL MATE BASED (Σ COL. J) 7b 279

(ENTER HERE AND AT LINE 8, FORM IA01)

SAM/IA WORKSHEET FOR LEVEL 2 Figure 8(g). Example 2(c) (Concluded).

Form IA02 Level 2

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1. SOURCE/CONTROL OPTION

Wall-fired utility boiler/electrostatic precipitator (η = 99%)/LEA

2. EFFLUENT STREAM

CODE # 301

NAME ESP hopper ash

3. EFFLUENT STREAM FLOW RATE

Q = 186 g/sec

(gas = m³/sec — liquid = l/sec — solid = g/sec)

4. COMPLETE THE FOLLOWING TABLE FOR THE EFFLUENT STREAM OF LINE 2 (USE BACK OF FORM FOR SCRATCH WORK)

A		B	C	D	E	F	G	H	I	J
									TOXIC UNIT DISCHARGE RATE	
POLLUTANT SPECIES	CATEGORY	POLLUTANT CONCENTRATION	HEALTH MATE CONCENTRATION	ECOLOGICAL MATE CONCENTRATION	DEGREE OF HAZARD (HEALTH) (B/C)	DEGREE OF HAZARD (ECOLOGICAL) (B/D)	√ IF HEALTH MATE EXCEEDED	√ IF ECOL MATE EXCEEDED	(HEALTH BASED) (E x LINE 3)	(ECOLOGICAL BASED) (F x LINE 3)
UNITS	—	μg/g	μg/g	μg/g	—	—	—	—	g/sec	g/sec
Al	38	7.74×10^4	160	2	4.8×10^2	3.9×10^4	✓	✓	9×10^4	7.2×10^6
As	49	157	0.5	0.1	314	1.6×10^3	✓	✓	5.8×10^4	2.9×10^5
Hg	83	0.22	0.02	0.5	11	0.44	✓	—	2×10^3	82
V	65	280	5	0.3	56	933	✓	✓	10^4	1.7×10^5
Zn	81	3.3×10^3	50	0.2	66	1.7×10^4	✓	✓	1.2×10^4	3.1×10^6
Zr	63	458	15	—	30.5	—	✓	—	5.7×10^3	—
Pb	46	148	0.5	0.1	296	1.5×10^3	✓	✓	5.5×10^4	2.8×10^5

IF MORE SPACE IS NEEDED, USE A CONTINUATION SHEET

5. EFFLUENT STREAM DEGREE OF HAZARD

HEALTH MATE BASED (Σ COL. E) 5a 1.3×10^3

ECOLOGICAL MATE BASED (Σ COL. F) 5b 6×10^4

(ENTER HERE AND AT LINE 8, FORM IA01)

6. NUMBER OF POLLUTANTS COMPARED TO MATES

HEALTH 6a 7

ECOLOGICAL 6b 6

7. TOXIC UNIT DISCHARGE SUM

HEALTH MATE BASED (Σ COL. I) 7a 2.3×10^5

ECOLOGICAL MATE BASED (Σ COL. J) 7b 1.1×10^7

(ENTER HERE AND AT LINE 8, FORM IA01)

3.4 EXAMPLE 3 — FLAT GLASS PROCESSING

The third example is a 500-tonne per day flat glass plant. The primary emissions are to the air and are from the glass melting oven and the annealing lehr. As in the previous example, this example is included to clarify the use of the SAM/IA method rather than to perform an accurate analysis of a process. Consequently, some concentrations have been approximated where data were lacking. Results are shown in Figures 9(a) through 9(f).

Figure 9(a). Example 3

SAM/IA SUMMARY SHEET

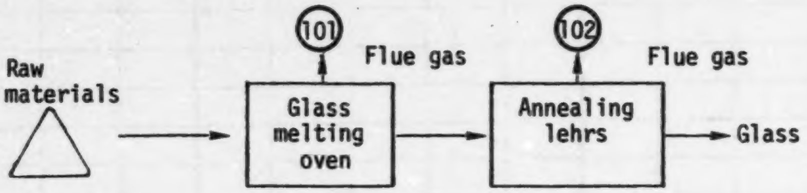
Form IA01

1. SOURCE AND APPLICABLE CONTROL OPTIONS

Flat glass manufacturing process (gas-fired) air emissions

2. PROCESS THROUGHPUT OR CAPACITY (500 tonnes/day) 17 kg/s

3. USE THIS SPACE TO SKETCH A BLOCK DIAGRAM OF THE SOURCE AND CONTROL ITEMS SHOWING ALL EFFLUENT STREAMS. INDICATE EACH STREAM WITH A CIRCLED NUMBER USING 101-199 FOR GASEOUS STREAMS, 201-299 FOR LIQUID STREAMS, AND 301-399 FOR SOLID WASTE STREAMS.



4. LIST AND DESCRIBE GASEOUS EFFLUENT STREAMS USING RELEVANT NUMBERS FROM STEP 3.

101 Melting oven flue gas
102 Annealing lehr flue gas
103
104
105
106
107

5. LIST AND DESCRIBE LIQUID EFFLUENT STREAMS USING RELEVANT NUMBERS FROM STEP 3.

201
202
203
204
205
206

6. LIST AND DESCRIBE SOLID WASTE EFFLUENT STREAMS USING RELEVANT NUMBERS FROM STEP 3.

301
302
303
304
305
306

7. IF YOU ARE PERFORMING A LEVEL 1 ASSESSMENT, COMPLETE THE IA02-LEVEL 1 FORM FOR EACH EFFLUENT STREAM LISTED ABOVE. IF YOU ARE PERFORMING A LEVEL 2 ASSESSMENT, COMPLETE THE IA02-LEVEL 2 FORM FOR EACH EFFLUENT STREAM LISTED ABOVE.

Figure 9(b). Example 3 (Continued).

8. LIST SUMS FROM LINE 7, FORMS IA02, IN TABLE BELOW

DEGREE OF HAZARD AND TOXIC UNIT DISCHARGE RATES BY EFFLUENT STREAM

GASEOUS					LIQUID					SOLID WASTE				
STREAM CODE	DEGREE OF HAZARD		TOXIC UNIT DISCHARGE RATES		STREAM CODE	DEGREE OF HAZARD		TOXIC UNIT DISCHARGE RATES		STREAM CODE	DEGREE OF HAZARD		TOXIC UNIT DISCHARGE RATES	
	HEALTH BASED	ECOL. BASED	HEALTH BASED	ECOL. BASED		HEALTH BASED	ECOL. BASED	HEALTH BASED	ECOL. BASED		HEALTH BASED	ECOL. BASED	HEALTH BASED	ECOL. BASED
	—	—	(m^3/sec)			—	—	(l/sec)			—	—	(g/sec)	
101	1.1E4	0.04	8.6E5	2.9										
102	102	1	31.	0.3										
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O

9. SUM SEPARATELY GASEOUS, LIQUID AND SOLID WASTE STREAM DEGREES OF HAZARD FROM TABLE AT LINE 8 (I.E., SUM COLUMNS)

TOTAL DEGREE OF HAZARD

	HEALTH-BASED	ECOLOGICAL-BASED
GASEOUS	(Σ COL. B) 9A 1.1E4	(Σ COL. C) 9A' 1
LIQUID	(Σ COL. G) 9B	(Σ COL. H) 9B'
SOLID WASTE	(Σ COL. L) 9C	(Σ COL. M) 9C'

10. SUM SEPARATELY GASEOUS, LIQUID AND SOLID WASTE STREAM TOXIC UNIT DISCHARGE RATES FROM TABLE AT LINE 8 (I.E., SUM COLUMNS)

TOTAL TOXIC UNIT DISCHARGE RATES

	HEALTH-BASED	ECOLOGICAL-BASED
GASEOUS (m^3/sec)	(Σ COL. D) 10A 8.6E5	(Σ COL. E) 10A' 3.2
LIQUID (l/sec)	(Σ COL. I) 10B	(Σ COL. J) 10B'
SOLID WASTE (g/sec)	(Σ COL. N) 10C	(Σ COL. O) 10C'

11. NUMBER OF EFFLUENT STREAMS

GASEOUS 11A 2

LIQUID 11B

SOLID WASTE 11C

12. LIST POLLUTANT SPECIES KNOWN OR SUSPECTED TO BE EMITTED FOR WHICH A MATE IS NOT AVAILABLE.

HC, particulate, SO_3, Cr, Si, Mn, Ca, F^-, NO_x, SO_x

SAM/IA WORKSHEET FOR LEVEL 2 Figure 9(c). Example 3 (Continued). **Form IA02 Level 2**

1. SOURCE/CONTROL OPTION
Flat glass manufacturing process/gas fired

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2. EFFLUENT STREAM
101 Melting oven flue gas
CODE # NAME

3. EFFLUENT STREAM FLOW RATE
Q = 76 m^3/sec
(gas = m³/sec — liquid = l/sec — solid = g/sec)

4. COMPLETE THE FOLLOWING TABLE FOR THE EFFLUENT STREAM OF LINE 2 (USE BACK OF FORM FOR SCRATCH WORK)

A		B	C	D	E	F	G	H	I	J
POLLUTANT SPECIES	CATEGORY	POLLUTANT CONCENTRATION	HEALTH MATE CONCENTRATION	ECOLOGICAL MATE CONCENTRATION	DEGREE OF HAZARD (HEALTH) (B/C)	DEGREE OF HAZARD (ECOLOGICAL) (B/D)	√ IF HEALTH MATE EXCEEDED	√ IF ECOL MATE EXCEEDED	TOXIC UNIT DISCHARGE RATE (HEALTH BASED) (E x LINE 3)	TOXIC UNIT DISCHARGE RATE (ECOLOGICAL BASED) (F x LINE 3)
UNITS	–	μg/m^3	μg/m^3	μg/m^3	—	—	—	—	m^3/sec	m^3/sec
NO_x	47	8.9×10^5	9,000	—	99	—	✓	—	7.5×10^3	—
SO_x	53	3.6×10^5	13,000	—	27.7	—	✓	—	2.1×10^3	—
CO	42	4.5×10^3	40,000	120,000	0.11	0.038	—	—	8.6	2.9
HC	—	8.9×10^3	—	—	—	—	—	—	—	—
Particulate	—	2.2×10^5	—	—	—	—	—	—	—	—
Fluoride	56	22.3	2,500	—	0.009	—	—	—	0.68	—
Ca	34	4.5×10^4	16,000	—	2.8	—	✓	—	214	—
Mn	71	6.7×10^3	5,000	—	1.34	—	✓	—	102	—
Si	43	3.4×10^4	10,000	—	3.4	—	✓	—	2.6×10^2	—

IF MORE SPACE IS NEEDED, USE A CONTINUATION SHEET

5. EFFLUENT STREAM DEGREE OF HAZARD
HEALTH MATE BASED (Σ COL. E) 5a 1.1×10^4
ECOLOGICAL MATE BASED (Σ COL. F) 5b 0.04
(ENTER HERE AND AT LINE 8, FORM IA01)

6. NUMBER OF POLLUTANTS COMPARED TO MATES
HEALTH 6a 8
ECOLOGICAL 6b 1

7. TOXIC UNIT DISCHARGE SUM
HEALTH MATE BASED (Σ COL. I) 7a 8.6×10^5
ECOLOGICAL MATE BASED (Σ COL. J) 7b 2.9
(ENTER HERE AND AT LINE 8, FORM IA01)

CONTINUATION SHEET FOR ITEM NO. 4, FORM IA02, LEVEL 2

Figure 9(d). Example 3 (Continued).

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SOURCE/CONTROL OPTION Flat glass manufacturing process/gas fired

EFFLUENT STREAM NO. 101

	A	B	C	D	E	F	G	H	I	J
									TOXIC UNIT DISCHARGE RATE	
POLLUTANT SPECIES	CATEGORY	POLLUTANT CONCENTRATION	HEALTH MATE CONCENTRATION	ECOLOGICAL MATE CONCENTRATION	DEGREE OF HAZARD (HEALTH) (B/C)	DEGREE OF HAZARD (ECOLOGICAL) (B/D)	√ IF HEALTH MATE EXCEEDED	√ IF ECOL MATE EXCEEDED	(HEALTH BASED) (E x LINE 3)	(ECOLOGICAL BASED) (F x LINE 3)
UNITS	—				—	—	--	—		
Cr	68	1.1×10^4	1	--	1.1×10^4	--	✓	--	8.5×10^5	--

SAM/IA WORKSHEET FOR LEVEL 2 Figure 9(e). Example 3 (Continued). **Form IA02 Level 2**

1. SOURCE/CONTROL OPTION
Flat glass plant/gas fired

Page 1 / 1

2. EFFLUENT STREAM
102 Annealing lehr flue gas
CODE # NAME

3. EFFLUENT STREAM FLOW RATE
Q = 0.304 m^3/sec
(gas = m³/sec — liquid = l/sec — solid = g/sec)

4. COMPLETE THE FOLLOWING TABLE FOR THE EFFLUENT STREAM OF LINE 2 (USE BACK OF FORM FOR SCRATCH WORK)

A		B	C	D	E	F	G	H	I	J
									TOXIC UNIT DISCHARGE RATE	
POLLUTANT SPECIES	CATEGORY	POLLUTANT CONCENTRATION	HEALTH MATE CONCENTRATION	ECOLOGICAL MATE CONCENTRATION	DEGREE OF HAZARD (HEALTH) (B/C)	DEGREE OF HAZARD (ECOLOGICAL) (B/D)	√ IF HEALTH MATE EXCEEDED	√ IF ECOL MATE EXCEEDED	(HEALTH BASED) (E x LINE 3)	(ECOLOGICAL BASED) (F x LINE 3)
UNITS	–	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	—	—	—	—	m^3/sec	m^3/sec
NO_x	47	8.9×10^5	9,000	—	98.9	—	✓	—	30	—
CO	42	1.2×10^5	40,000	120,000	3	1	✓	✓	0.9	0.3

IF MORE SPACE IS NEEDED, USE A CONTINUATION SHEET

5. EFFLUENT STREAM DEGREE OF HAZARD
HEALTH MATE BASED (Σ COL. E) 5a 102
ECOLOGICAL MATE BASED (Σ COL. F) 5b 1
(ENTER HERE AND AT LINE 8, FORM IA01)

6. NUMBER OF POLLUTANTS COMPARED TO MATES
HEALTH 6a 2
ECOLOGICAL 6b 1

7. TOXIC UNIT DISCHARGE SUM
HEALTH MATE BASED (Σ COL. I) 7a 31
ECOLOGICAL MATE BASED (Σ COL. J) 7b 0.3
(ENTER HERE AND AT LINE 8, FORM IA01)

Figure 9(f). Example 3 (Concluded).

NOTES

Calculation of flue gas flowrate:

Flowrate is unknown; theoretical heat to melt 1 kg of raw materials is 1.85 MJ. For an efficiency of 20 percent and a capacity of 500 x 10^3 kg/day, the oven fuel input must be 160 MW. A 110-MW powerplant has a flowrate of 57 m^3/s, so the flowrate in the gas oven is about

$$Q = (57) \times \left(\frac{160}{110}\right) = 76 \ m^3/s$$

ASSUMPTIONS

LIST ALL ASSUMPTIONS MADE REGARDING FLOW RATE, EMISSION FACTORS AND MATE VALUES.

3.5 EXAMPLE 4 — BYPRODUCT COKE OVEN

The fourth example shows the effect of waste water treatment on liquid effluent from a coke oven in Figures 10(a) through 10(f). This example is included to show the use of SAM/IA to evaluate TUDRs in a single stream before and after treatment. Consequently, only the raw effluent stream and the "cleaned effluent stream" are considered and other effluent streams are neglected.

Pollutant concentrations in the effluent streams were known directly from sampling data (Reference 7) and did not have to be calculated from emission factors.

The result of the analysis shows that the waste water treatment reduces the health based TUDR sum from 3.2×10^5 to 4.8×10^4 l/sec, an 85-percent reduction.

Figure 10(a). Example 4.

SAM/IA SUMMARY SHEET

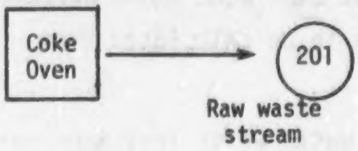
Form IA01

1. SOURCE AND APPLICABLE CONTROL OPTIONS

Byproduct coke oven "C"/liquid waste/untreated

2. PROCESS THROUGHPUT OR CAPACITY 5400 tonnes/day

3. USE THIS SPACE TO SKETCH A BLOCK DIAGRAM OF THE SOURCE AND CONTROL ITEMS SHOWING ALL EFFLUENT STREAMS. INDICATE EACH STREAM WITH A CIRCLED NUMBER USING 101-199 FOR GASEOUS STREAMS, 201-299 FOR LIQUID STREAMS, AND 301-399 FOR SOLID WASTE STREAMS.



4. LIST AND DESCRIBE GASEOUS EFFLUENT STREAMS USING RELEVANT NUMBERS FROM STEP 3.

101 __________

102 __________

103 __________

104 __________

105 __________

106 __________

107 __________

5. LIST AND DESCRIBE LIQUID EFFLUENT STREAMS USING RELEVANT NUMBERS FROM STEP 3.

201 Raw waste stream

202 __________

203 __________

204 __________

205 __________

206 __________

6. LIST AND DESCRIBE SOLID WASTE EFFLUENT STREAMS USING RELEVANT NUMBERS FROM STEP 3.

301 __________

302 __________

303 __________

304 __________

305 __________

306 __________

7. IF YOU ARE PERFORMING A LEVEL 1 ASSESSMENT, COMPLETE THE IA02-LEVEL 1 FORM FOR EACH EFFLUENT STREAM LISTED ABOVE. IF YOU ARE PERFORMING A LEVEL 2 ASSESSMENT, COMPLETE THE IA02-LEVEL 2 FORM FOR EACH EFFLUENT STREAM LISTED ABOVE.

Figure 10(b). Example 4 (Continued).

8. LIST SUMS FROM LINE 7, FORMS IA02, IN TABLE BELOW

DEGREE OF HAZARD AND TOXIC UNIT DISCHARGE RATES BY EFFLUENT STREAM

GASEOUS					LIQUID					SOLID WASTE				
STREAM CODE	DEGREE OF HAZARD		TOXIC UNIT DISCHARGE RATES		STREAM CODE	DEGREE OF HAZARD		TOXIC UNIT DISCHARGE RATES		STREAM CODE	DEGREE OF HAZARD		TOXIC UNIT DISCHARGE RATES	
	HEALTH BASED	ECOL. BASED	HEALTH BASED	ECOL. BASED		HEALTH BASED	ECOL. BASED	HEALTH BASED	ECOL. BASED		HEALTH BASED	ECOL. BASED	HEALTH BASED	ECOL. BASED
	—	—	(m^3/sec)			—	—	(l/sec)			—	—	(g/sec)	
					201	1.9E5	1.5E5	1.8E6	1.5E6					
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O

9. SUM SEPARATELY GASEOUS, LIQUID AND SOLID WASTE STREAM DEGREES OF HAZARD FROM TABLE AT LINE 8 (I.E., SUM COLUMNS)

	TOTAL DEGREE OF HAZARD	
	HEALTH-BASED	ECOLOGICAL-BASED
GASEOUS	(Σ COL. B) 9A	(Σ COL. C) 9A'
LIQUID	(Σ COL. G) 9B 1.9×10^5	(Σ COL. H) 9B' 1.5×10^5
SOLID WASTE	(Σ COL. L) 9C	(Σ COL. M) 9C'

10. SUM SEPARATELY GASEOUS, LIQUID AND SOLID WASTE STREAM TOXIC UNIT DISCHARGE RATES FROM TABLE AT LINE 8 (I.E., SUM COLUMNS)

	TOTAL TOXIC UNIT DISCHARGE RATES	
	HEALTH-BASED	ECOLOGICAL-BASED
GASEOUS (m^3/sec)	(Σ COL. D) 10A	(Σ COL. E) 10A'
LIQUID (l/sec)	(Σ COL. I) 10B 1.8×10^6	(Σ COL. J) 10B' 1.5×10^6
SOLID WASTE (g/sec)	(Σ COL. N) 10C	(Σ COL. O) 10C'

11. NUMBER OF EFFLUENT STREAMS

GASEOUS 11A

LIQUID 11B one

SOLID WASTE 11C

12. LIST POLLUTANT SPECIES KNOWN OR SUSPECTED TO BE EMITTED FOR WHICH A MATE IS NOT AVAILABLE.

sulfide

SAM/IA WORKSHEET FOR LEVEL 2 Figure 10(c). Example 4 (Continued).

Form IA02 Level 2

1. SOURCE/CONTROL OPTION

Byproduct coke oven raw waste stream

Page 1 / 1

2. EFFLUENT STREAM

201 Raw waste load

CODE # NAME

3. EFFLUENT STREAM FLOW RATE

Q = 9.7 l/sec

(gas = m³/sec — liquid = l/sec — solid = g/sec)

4. COMPLETE THE FOLLOWING TABLE FOR THE EFFLUENT STREAM OF LINE 2 (USE BACK OF FORM FOR SCRATCH WORK)

A		B	C	D	E	F	G	H	I	J
POLLUTANT SPECIES	CATEGORY	POLLUTANT CONCENTRATION	HEALTH MATE CONCENTRATION	ECOLOGICAL MATE CONCENTRATION	DEGREE OF HAZARD (HEALTH) (B/C)	DEGREE OF HAZARD (ECOLOGICAL) (B/D)	√ IF HEALTH MATE EXCEEDED	√ IF ECOL MATE EXCEEDED	TOXIC UNIT DISCHARGE RATE (HEALTH BASED) (E x LINE 3)	TOXIC UNIT DISCHARGE RATE (ECOLOGICAL BASED) (F x LINE 3)
UNITS	–	μg/l	μg/l	μg/l	—	—	—	—	l/sec	l/sec
Ammonia	47	7,330,000	2,500	50	2,932	146,600	✓	✓	$2.8x10^5$	$1.4x10^6$
Cyanide	47	91,000	500	25	182	3,640	✓	✓	$1.8x10^3$	$3.5x10^4$
Phenol	18A	910,000	5	500	182,000	1,820	✓	✓	$1.8x10^6$	$1.8x10^4$
Sulfide	53	197,000	—	—	—	—	—	—	—	—

IF MORE SPACE IS NEEDED, USE A CONTINUATION SHEET

5. EFFLUENT STREAM DEGREE OF HAZARD

HEALTH MATE BASED (Σ COL. E) 5a $1.9x10^5$

ECOLOGICAL MATE BASED (Σ COL. F) 5b $1.5x10^5$

(ENTER HERE AND AT LINE 8, FORM IA01)

6. NUMBER OF POLLUTANTS COMPARED TO MATES

HEALTH 6a 3

ECOLOGICAL 6b 3

7. TOXIC UNIT DISCHARGE SUM

HEALTH MATE BASED (Σ COL. I) 7a $1.8x10^6$

ECOLOGICAL MATE BASED (Σ COL. J) 7b $1.5x10^6$

(ENTER HERE AND AT LINE 8, FORM IA01)

Figure 10(d). Example 4 (Continued).

SAM/IA SUMMARY SHEET

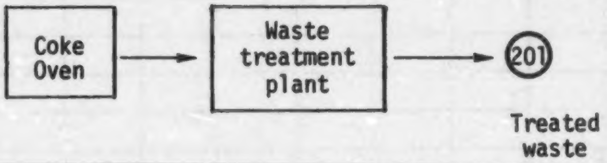
Form IA01

1. SOURCE AND APPLICABLE CONTROL OPTIONS

Byproduct coke oven "C"/liquid waste - after treatment

2. PROCESS THROUGHPUT OR CAPACITY 5400 tonnes/day

3. USE THIS SPACE TO SKETCH A BLOCK DIAGRAM OF THE SOURCE AND CONTROL ITEMS SHOWING ALL EFFLUENT STREAMS. INDICATE EACH STREAM WITH A CIRCLED NUMBER USING 101-199 FOR GASEOUS STREAMS, 201-299 FOR LIQUID STREAMS, AND 301-399 FOR SOLID WASTE STREAMS.



4. LIST AND DESCRIBE GASEOUS EFFLUENT STREAMS USING RELEVANT NUMBERS FROM STEP 3.

101 __________
102 __________
103 __________
104 __________
105 __________
106 __________
107 __________

5. LIST AND DESCRIBE LIQUID EFFLUENT STREAMS USING RELEVANT NUMBERS FROM STEP 3.

201 Treated effluent discharge
202 __________
203 __________
204 __________
205 __________
206 __________

6. LIST AND DESCRIBE SOLID WASTE EFFLUENT STREAMS USING RELEVANT NUMBERS FROM STEP 3.

301 __________
302 __________
303 __________
304 __________
305 __________
306 __________

7. IF YOU ARE PERFORMING A LEVEL 1 ASSESSMENT, COMPLETE THE IA02-LEVEL 1 FORM FOR EACH EFFLUENT STREAM LISTED ABOVE. IF YOU ARE PERFORMING A LEVEL 2 ASSESSMENT, COMPLETE THE IA02-LEVEL 2 FORM FOR EACH EFFLUENT STREAM LISTED ABOVE.

Figure 10(e). Example 4 (Continued).

8. LIST SUMS FROM LINE 7, FORMS IA02, IN TABLE BELOW

DEGREE OF HAZARD AND TOXIC UNIT DISCHARGE RATES BY EFFLUENT STREAM

GASEOUS					LIQUID					SOLID WASTE				
STREAM CODE	DEGREE OF HAZARD		TOXIC UNIT DISCHARGE RATES		STREAM CODE	DEGREE OF HAZARD		TOXIC UNIT DISCHARGE RATES		STREAM CODE	DEGREE OF HAZARD		TOXIC UNIT DISCHARGE RATES	
	HEALTH BASED	ECOL. BASED	HEALTH BASED	ECOL. BASED		HEALTH BASED	ECOL. BASED	HEALTH BASED	ECOL. BASED		HEALTH BASED	ECOL. BASED	HEALTH BASED	ECOL. BASED
	—	—	(m^3/sec)			—	—	(l/sec)			—	—	(g/sec)	
					201	3.6E4	1.4E4	3.5E5	1.3E5					
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O

9. SUM SEPARATELY GASEOUS, LIQUID AND SOLID WASTE STREAM DEGREES OF HAZARD FROM TABLE AT LINE 8 (I.E., SUM COLUMNS)

	TOTAL DEGREE OF HAZARD	
	HEALTH-BASED	ECOLOGICAL-BASED
GASEOUS	(Σ COL. B) 9A	(Σ COL. C) 9A'
LIQUID	(Σ COL. G) 9B 3.6E4	(Σ COL. H) 9B' 1.4E4
SOLID WASTE	(Σ COL. L) 9C	(Σ COL. M) 9C'

10. SUM SEPARATELY GASEOUS, LIQUID AND SOLID WASTE STREAM TOXIC UNIT DISCHARGE RATES FROM TABLE AT LINE 8 (I.E., SUM COLUMNS)

	TOTAL TOXIC UNIT DISCHARGE RATES	
	HEALTH-BASED	ECOLOGICAL-BASED
GASEOUS (m^3/sec)	(Σ COL. D) 10A	(Σ COL. E) 10A'
LIQUID (l/sec)	(Σ COL. I) 10B 3.5E5	(Σ COL. J) 10B' 1.3E5
SOLID WASTE (g/sec)	(Σ COL. N) 10C	(Σ COL. O) 10C'

11. NUMBER OF EFFLUENT STREAMS

GASEOUS 11A

LIQUID 11B one

SOLID WASTE 11C

12. LIST POLLUTANT SPECIES KNOWN OR SUSPECTED TO BE EMITTED FOR WHICH A MATE IS NOT AVAILABLE.

Sulfide

SAM/IA WORKSHEET FOR LEVEL 2 Figure 10(f). Example 4 (Concluded). **Form IA02 Level 2**

1. SOURCE/CONTROL OPTION

Byproduct coke oven waste water treatment effluent

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2. EFFLUENT STREAM

201 Treated effluent discharge

CODE # NAME

3. EFFLUENT STREAM FLOW RATE

Q = 9.7 l/sec

(gas = m³/sec — liquid = l/sec — solid = g/sec)

4. COMPLETE THE FOLLOWING TABLE FOR THE EFFLUENT STREAM OF LINE 2 (USE BACK OF FORM FOR SCRATCH WORK)

A		B	C	D	E	F	G	H	I	J
POLLUTANT SPECIES	CATEGORY	POLLUTANT CONCENTRATION	HEALTH MATE CONCENTRATION	ECOLOGICAL MATE CONCENTRATION	DEGREE OF HAZARD (HEALTH) (B/C)	DEGREE OF HAZARD (ECOLOGICAL) (B/D)	√ IF HEALTH MATE EXCEEDED	√ IF ECOL MATE EXCEEDED	TOXIC UNIT DISCHARGE RATE (HEALTH BASED) (E x LINE 3)	(ECOLOGICAL BASED) (F x LINE 3)
UNITS	–	μg/l	μg/l	μg/l	—	—	—	—	l/sec	l/sec
Ammonia	47	520,000	2,500	50	208	1.04×10^4	✓	✓	2×10^3	10^5
Cyanide	47	74,000	500	25	148	3×10^3	✓	✓	1.4×10^3	2.8×10^4
Phenol	18A	18,000	5	500	36,000	360	✓	✓	3.5×10^5	3.5×10^3
Sulfide	53	50,000	—	—	—	—	—	—	—	—

IF MORE SPACE IS NEEDED, USE A CONTINUATION SHEET

5. EFFLUENT STREAM DEGREE OF HAZARD

HEALTH MATE BASED (Σ COL. E) 5a 3.6×10^4

ECOLOGICAL MATE BASED (Σ COL. F) 5b 1.4×10^4

(ENTER HERE AND AT LINE 8, FORM IA01)

6. NUMBER OF POLLUTANTS COMPARED TO MATES

HEALTH 6a 3

ECOLOGICAL 6b 3

7. TOXIC UNIT DISCHARGE SUM

HEALTH MATE BASED (Σ COL. I) 7a 3.5×10^5

ECOLOGICAL MATE BASED (Σ COL. J) 7b 1.3×10^5

(ENTER HERE AND AT LINE 8, FORM IA01)

REFERENCES

1. Cleland, J. G. and Kingsbury, G. L., "Multimedia Environmental Goals for Environmental Assessment: Vol. 1," EPA-600/7-77-136a, November 1977.

2. Vitez, B., "Trace Elements in Flue Gases and Air Quality Criteria," Power Engineering, Vol. 80, No. 1, January 1976.

3. Ruch, R. R., et al., "Occurrence and Distribution of Potentially Volatile Trace Elements in Coal," EPA-650/2-74-054.

4. "Supplement No. 6 for Compilation of Air Pollutant Emission Factors (Second Edition)," U.S. Environmental Protection Agency, Office of Air and Waste Management, Office of Air Quality Planning and Standards, July 1974.

5. Bartok, W., et al., "Field Testing: Application of Combustion Modifications to Control NO_x Emissions from Utility Boilers," Exxon Research and Engineering Company, EPA-650/2-74-066.

6. Klein, David H., et al., "Pathways of 37 Trace Elements Through Coal-Fired Power Plant," Environmental Science and Technology, Vol. 9, No. 10, pp. 973-979, October 1975.

7. Development Document for Effluent Limitations Guidelines and New Source Performance Standards for the Steel Making Segment of the Iron and Steel Manufacturing Point Source Category, EPA-440/1-74-024a, PB-238 837.

APPENDIX A

SAMPLE FRACTION CATEGORIES AND ORDERED MATE VALUES

A-1	Air — Health
A-2	Air — Ecology
A-3	Water — Health
A-4	Water — Ecology
A-5	Solid — Health
A-6	Solid — Ecology
A-7	Sample Fraction and Chemical Categories
A-8	SSMS/AA Chemical Categories

TABLE A-1. KEY TO SAMPLE FRACTION LISTS AND SMALLEST MATE VALUES

Sample Fraction	Key						Smallest Mate Values					
	1	2	3	4	5	6	1	2	3	4	5	6
	Gaseous		Liquid		Solid Waste		Gaseous		Liquid		Solid Waste	
	Health	Ecology	Health	Ecology	Health	Ecology	Health	Ecology	Health	Ecology	Health	Ecology
C1	A-1C1	A-2C1	A-3C1	A-4C1	A-5C1	A-6C1	3.3E5*	1.	4.9E7*	1.E4*	9.8E4*	2.2
C2	A-1C2	A-2C2	A-3C2	A-4C2	A-5C2	A-6C2	5.3E6	1.1E5	8.E7	1.E5	1.6E5	200.
C3	A-1C3	A-2C3	A-3C3	A-4C3	A-5C3	A-6C3	330.	--	5.E3	1.E3	10.	2.
C4	A-1C4	A-2C4	A-3C4	A-4C4	A-5C4	A-6C4	1.8E4	--	2.7E5	1.E3	540.	2.
C5	A-1C5	A-2C5	A-3C5	A-4C5	A-5C5	A-6C5	2.0E2	94.	3.8E3	100.	7.5	2.
C6	A-1C6	A-2C6	A-3C6	A-4C6	A-5C6	A-6C6	10.0	--	150.	0.02	0.3	4.E-5
C7	A-1C7	A-2C7	A-3C7	A-4C7	A-5C7	A-6C7	1.0E3	--	1.5E4	1.E4	3.	20.
C8	A-1C8	A-2C8	A-3C8	A-4C8	A-5C8	A-6C8	1.0E3	--	1.5E4	100.	30.	0.2
C9	A-1C9	A-2C9	A-3C9	A-4C9	A-5C9	A-6C9	1.2	--	18.	1.E3	0.04	2.
C10	A-1C10	A-2C10	A-3C10	A-4C10	A-5C10	A-6C10	120.	--	5.	100.	0.01	0.2
C11	A-1C11	A-2C11	A-3C11	A-4C11	A-5C11	A-6C11	110.	--	5.	100.	0.01	0.2
C12	A-1C12	A-2C12	A-3C12	A-4C12	A-5C12	A-6C12	100.	--	5.	100.	0.01	0.2
GC11	A-1GC11	A-2GC11	A-3GC11	A-4GC11	A-5GC11	A-6GC12	3.8E4	--	5.8E5	--	1.2E3	--
LC1	A-1LC1	A-2LC1	A-3LC1	A-4LC1	A-5LC1	A-6LC1	100.	--	1.5E3	100.	3.	0.2
LC2	A-1LC2	A-2LC2	A-3LC2	A-4LC2	A-5LC2	A-6LC2	110.	--	1.7E3	0.01	1.4	1.E-5
LC3	A-1LC3	A-2LC3	A-3LC3	A-4LC3	A-5LC3	A-6LC3	0.02	--	0.3	0.01	0.003	1.E-5
LC4	A-1LC4	A-2LC4	A-3LC4	A-4LC4	A-5LC4	A-6LC4	990.	--	1.5E4	1.E3	30.	2.
LC5	A-1LC5	A-2LC5	A-3LC5	A-4LC5	A-5LC5	A-6LC5	1.3E3	--	1.9E4	1.E3	38.	2.
LC6	A-1LC6	A-2LC6	A-3LC6	A-4LC6	A-5LC6	A-6LC6	170.	--	5.	1.5	0.01	0.003
LC7	A-1LC7	A-2LC7	A-3LC7	A-4LC7	A-5LC7	A-6LC7	100.	--	5.	100.	0.01	0.2
LC8	A-1LC8	A-2LC8	A-3LC8	A-4LC8	A-5LC3	A-6LC8	6.E3	--	9.E4	1.E3	180.	2.
LC12	A-1LC12	A-2LC12	A-3LC12	A-4LC12	A-5LC12	A-6LC12	1.6E4	--	5.	500.	0.01	1.
SGC	A-1SGC	A-2SGC	A-3SGC	A-4SGC	A-5SGC	A-6SGC	1.E3	--	1.5E4	--	30.	--
SSMS/AA	Use Table A-8 SSMS/AA											

*Note: In this table and succeeding lists, computer notation is used. Numbers of the form: 3.3×10^5 are written in the form: 3.3E5.

LIST A-1 - AIR - HEALTH

MATE UNITS: MICROGRAMS/CUBIC METER

SAMPLE FRACTION	MATE VALUE	CATEGORY	SUBSTANCE
C1	3.3E5	1A	METHANE
C1	5.7E6	1B	ETHYLENE
C2	5.3E6	1C	ACETYLENE
C2	6.1E6	1A	ETHANE
C2	8.6E6	1B	PROPYLENE
C3	N *	1B	BUTYLENES
C3	N	1C	BUTYNE
C3	3.3E2	10B	ETHYLENEIMINE
C3	4.0E2	11	DIAZOMETHANE
C3	1.6E3	7A	FORMALDEHYDE
C3	2.6E3	2B	VINYL CHLORIDE (CHLOROETHENE)
C3	1.8E4	10B	DIMETHYLAMINE
C3	7.5E4	10B	DIETHYLAMINE
C3	2.1E5	2A	METHYL CHLORIDE
C3	1.7E6	1C	PROPYNE
C3	2.2E6	1B	BUTADIENES
C3	5.0E6	2A	DICHLORODIFLUOROMETHANE
C3	9.0E6	1A	PROPANE
C4	N	10B	ETHYLMETHYLAMINE
C4	1.8E4	10A	ETHYLAMINE
C4	6.0E4	2A	METHYL BROMIDE
C4	1.8E5	7A	ACETALDEHYDE
C4	1.4E6	1A	BUTANES
C4	5.6E6	2A	TRICHLOROFLUOROMETHANE
C5	N	1B	CYCLOHEXADIENE
C5	N	1A	CYCLOPENTANE
C5	N	24	FURAN
C5	N	1B	PENTENES
C5	N	26A	TRIMETHYLARSINE
C5	N	10A	3-AMINOPROPANE
C5	2.5E2	7A	ACROLEIN
C5	8.5E2	2A	METHYL IODIDE
C5	4.5E3	25	THIOPHENE
C5	3.6E4	7A	PROPIONALDEHYDE

* NOT YET ASSIGNED

LIST A-1 - AIR - HEALTH

MATE UNITS: MICROGRAMS/CUBIC METER

SAMPLE FRACTION	MATE VALUE	CATEGORY	SUBSTANCE
C5	3.7E4	4	CHLOROMETHYL METHYL ETHER
C5	4.5E4	2A	TRICHLOROETHANE
C5	6.0E4	2A	CARBON TETRACHLORIDE
C5	2.0E5	1B	CYCLOPENTADIENES
C5	2.0E5	2A	1,2-DICHLOROETHANE
C5	2.6E5	2B	1,1-DICHLOROETHENE
C5	7.0E5	2B	1,2-DICHLOROETHENE
C5	1.0E6	1A	PENTANES
C5	2.4E6	7B	ACETONE
C5	5.0E6	2A	1,2-DICHLORO-1,2-DIFLUOROETHANE
C6	N	2A	BROMODICHLOROMETHANE
C6	N	1B	HEPTENES
C6	N	1B	HEXENES
C6	N	4	2-CHLOROETHYL METHYL ETHER
C6	1.0E1	26A	ALKYL MERCURY
C6	8.2E1	11	N,N'-DIMETHYLHYDRAZINE
C6	1.3E3	10C	4-AMINOBIPHENYL
C6	1.8E3	9	1-CYANOETHANE
C6	3.0E3	15	BENZENE
C6	1.1E4	2B	DICHLOROPROPENES
C6	1.5E4	10A	BUTYLAMINES
C6	3.6E4	23A	PICOLINES
C6	4.5E4	5C	TERTIARY PENTANOL
C6	7.0E4	9	ACETONITRILE
C6	1.1E5	7A	BUTYRALDEHYDE
C6	1.2E5	2A	CHLOROFORM (TRICHLOROMETHANE)
C6	1.6E5	5B	2,6-DIMETHYL-4-HEPTANOL
C6	2.6E5	5A	METHANOL
C6	3.5E5	2A	DICHLOROPROPANES
C6	3.6E5	1A	HEXANES
C6	3.9E5	7A	3-METHYLBUTANAL
C6	4.5E5	5B	2-BUTANOL
C6	5.0E5	5A	1-PROPANOL
C6	5.9E5	7B	BUTANONE
C6	9.8E5	5B	2-PROPANOL (ISOPROPYL ALCOHOL)
C6	1.0E6	1B	CYCLOHEXENE
C6	1.1E6	2A	BROMOCHLOROMETHANE
C6	1.1E6	1A	CYCLOHEXANE
C6	1.9E6	5A	ETHANOL
C7	N	2A	BROMOBUTANES
C7	N	4	CHLOROETHYL ETHYL ETHER

LIST A-1 - AIR - HEALTH

MATE UNITS: MICROGRAMS/CUBIC METER

SAMPLE FRACTION	MATE VALUE	CATEGORY	SUBSTANCE
C7	N	4	CHLOROMETHYL ETHYL ETHER
C7	N	4	1-CHLORO-1,2-OXETANE
C7	N	4	1,1'-DICHLOROMETHYL ETHER
C7	N	3	2-METHOXY BIPHENYL
C7	1.0E3	8C	6-HEXANELACTAM (E-CAPROLACTAM)
C7	3.0E4	4	1,1'-DICHLORODIETHYL ETHER
C7	4.0E4	8B	HYDROXYBENZOIC ACID
C7	1.5E5	5A	ISOBUTYLALCOHOL
C7	1.8E5	3	1,3-DIOXANE
C7	1.8E5	3	1,4-DIOXANE
C7	4.1E5	8D	METHYL METHACRYLATE
C7	1.1E6	3	ISOPROPYL ETHER
C7	1.6E6	1A	HEPTANES
C8	N	2A	DIBROMODICHLOROMETHANE
C8	N	8A	LONG CHAIN ACIDS
C8	N	13B	METHYL DISULFIDE
C8	N	23A	PHENYL PYRIDINES
C8	1.0E3	8A	MALEIC ACID
C8	9.0E3	8A	FORMIC ACID
C8	1.5E4	23A	PYRIDINE
C8	1.6E4	6B	1-CHLORO-2,3-EPOXYPROPANE (A-EPICHLOROHYDRIN)
C8	1.9E4	8D	ADIPATES
C8	2.3E4	25	METHYLTHIOPHENES
C8	2.3E4	3	2-ETHYL-4-METHYL-1, 3-DIOXOLANES
C8	2.5E4	10A	1,2-DIAMINOETHANE
C8	4.0E4	10A	CYCLOHEXYLAMINE
C8	6.9E4	23A	COLLIDINES
C8	1.4E5	8A	BENZOIC ACID
C8	1.5E5	5A	N-BUTANOL
C8	2.6E5	2A	METHYLENE CHLORIDE (DICHLOROMETHANE)
C8	3.5E5	16A	CHLOROBENZENE
C8	3.6E5	5A	PENTANOLS (PRIMARY)
C8	3.6E5	5B	PENTANOLS (SECONDARY)
C8	3.8E5	15	TOLUENE
C8	4.4E5	15	ETHYL BENZENE
C8	6.7E5	2B	TETRACHLOROETHENE
C8	1.5E6	1A	OCTANES
C9	N	16A	BROMO AND DIBROMOBENZENES
C9	N	25	DIMETHYLTHIOPHENES
C9	N	4	1,2-DICHLORODIISOPROPYL ETHER

LIST A-1 - AIR - HEALTH

MATE UNITS: MICROGRAMS/CUBIC METER

SAMPLE FRACTION	MATE VALUE	CATEGORY	SUBSTANCE
C9	N	4	1,2-DICHLOROETHYL ETHYL ETHER
C9	1.2	12	N-NITROSO-DIMETHYLAMINE
C9	4.8E3	23A	CHLOROPYRIDINE
C9	1.9E4	8D	ADIPATES
C9	6.3E4	15	ISOPROPYL BENZENE
C9	9.6E4	13B	DIPHENYL SULFIDE
C9	1.3E5	10A	PROPANOLAMINE
C9	2.2E5	15	PROPYL BENZENE
C9	2.5E5	16A	2-CHLOROTOLUENE
C9	4.2E5	15	STYRENE
C9	4.4E5	15	XYLENES
C9	1.1E6	1A	NONANES
C10	N	1A	ALKANES (C>9)
C10	N	4	A-CHLOROBUTYL ETHYL ETHER
C10	N	24	BENZOFURAN
C10	N	25	TRI AND TETRAMETHYL THIOPHENES
C10	N	16A	1,3-DICHLOROBENZENE
C10	1.2E2	12	N-NITROSO-DIETHYLAMINE
C10	3.2E2	8B	3-HYDROXYPROPANOIC ACID LACTONE
C10	4.8E3	23A	CHLOROPYRIDINE
C10	5.0E3	2A	BROMOFORM (TRIBROMOMETHANE)
C10	6.0E3	10A	ETHANOLAMINE
C10	1.6E4	22	DICYCLOPENTADIENE
C10	1.9E4	8D	ADIPATES
C10	2.7E4	23A	DI AND POLYSUBSTITUTED PYRIDINES
C10	3.0E4	19	2-CHLOROPHENOL
C10	3.0E4	4	2,2'-DICHLORODIETHYL ETHER
C10	4.5E4	18B	1,3-DIHYDROXYBENZENE
C10	5.9E4	7A	BENZALDEHYDE
C10	1.2E5	15	TRIMETHYLBENZENES
C10	1.5E5	8D	METHYL BENZOATE
C10	1.5E5	6B	2,3-EPOXY-1-PROPANOL
C10	2.3E5	15	DIALKYL BENZENES
C10	3.0E5	16A	1,2-DICHLOROBENZENE
C10	4.5E5	16A	1,4-DICHLOROBENZENE
C11	N	1A	ALKANES (C>9)
C11	N	4	BIS-(1-CHLOROISOPROPYL) ETHER
C11	N	7B	TETRACHLOROACETONE
C11	N	15	TETRAMETHYLBENZENES
C11	N	2A	1-CHLOROOCTANE

LIST A-1 - AIR - HEALTH

MATE UNITS: MICROGRAMS/CUBIC METER

SAMPLE FRACTION	MATE VALUE	CATEGORY	SUBSTANCE
C11	1.1E2	10C	AMINOTOLUENES (METHYL ANILINES)
C11	5.0E2	2A	HEXACHLOROCYCLOHEXANE (LINDANE)
C11	8.1E2	14B	DIMETHYL SULFOXIDE
C11	5.0E3	16B	-CHLOROTOLUENE
C11	1.0E4	6A	ETHYLENE GLYCOL (1,2-ETHANEDIOL)
C11	1.0E4	2A	HEXACHLOROETHANE
C11	1.9E4	10C	ANILINE
C11	1.9E4	18A	PHENOL
C11	2.0E4	20	3-NITROPHENOL
C11	2.5E4	10C	DIMETHYLANILINE (XYLIDINES)
C11	4.5E4	9	ACRYLONITRILE
C11	5.0E4	21	NAPHTHALENE
C11	2.3E5	15	BUTYLBENZENE
C11	2.3E5	15	DIALKYL BENZENES
C11	3.6E5	6A	PROPYLENE GLYCOL (1,2-PROPANEDIOL)
C12	N	1A	ALKANES (C>9)
C12	N	16A	BROMO AND DIBROMOBENZENES
C12	N	16A	BROMOCHLOROBENZENES
C12	1.0E2	26A	TETRAETHYLLEAD
C12	2.4E3	12	N-NITROSO-DIPROPYLAMINE
C12	5.0E3	17	NITROBENZENE
C12	7.0E3	19	2,4-DICHLOROPHENOL
C12	2.2E4	18A	CRESOLS (METHYL PHENOLS)
C12	2.4E4	18A	ALKYL CRESOLS
C12	5.5E4	5A	A-HYDROXYTOLUENE (BENZYL ALCOHOL)
C12	5.8E4	20	2-NITROPHENOL
C12	1.3E5	15	TETRAHYDRONAPHTHALENE
C12	2.3E5	15	DIALKYL BENZENES
GC11	3.8E4	12	N-NITROSO-DIISOPROPYLAMINE
LC1	N	1A	ALKANES (C>9)
LC1	1.0E2	26A	TETRAETHYLLEAD

LIST A-1 - AIR - HEALTH

MATE UNITS: MICROGRAMS/CUBIC METER

SAMPLE FRACTION	MATE VALUE	CATEGORY	SUBSTANCE
LC2	N	16B	BIS-(CHLOROMETHYL)BENZENE
LC2	N	16A	BROMO AND DIBROMOBENZENES
LC2	N	16A	BROMOCHLOROBENZENES
LC2	N	22	CYCLOPENTANONAPHTHALENE
LC2	N	22	FLUORENE
LC2	N	15	4,4'-DIPHENYLBIPHENYL
LC2	1.1E2	28	HEXACHLOROCYCLOPENTADIENE
LC2	5.0E2	16A	POLYCHLORINATED BIPHENYLS
LC2	1.0E3	15	BIPHENYL
LC2	4.1E3	28	HEXACHLOROBUTADIENE
LC2	3.4E4	16A	POLYCHLORINATED BENZENES
LC2	4.5E4	15	INDENE
LC2	5.0E4	21	NAPHTHALENE
LC2	6.9E4	16A	CHLORONAPHTHALENES
LC2	1.3E5	15	DIHYDRONAPHTHALENE
LC2	1.3E5	15	TETRAHYDRONAPHTHALENE
LC2	2.3E5	21	DIMETHYL NAPHTHALENES
LC2	2.3E5	15	INDAN
LC2	2.3E5	21	MONOALKYL NAPHTHALENES
LC3	N	21	ACENAPHTHENE
LC3	N	21	ACENAPHTHYLENE
LC3	N	21	BENZO(G,H,I)PERYLENE
LC3	N	21	CORONENE
LC3	N	22	CYCLOPENTA(DEF)PHENANTHRENE
LC3	N	21	DIMETHYL PYRENES
LC3	N	23A	MONOSUBSTITUTED ALKYL PYRIDINES
LC3	N	21	NAPHTHACENE
LC3	N	21	PHENYL NAPHTHALENES
LC3	N	22	TRIBENZYLENEBENZENE (TRUXENE)
LC3	N	21	TRIPHENYLENE
LC3	N	21	1-METHYLPYRENE
LC3	N	22	1,2-BENZOFLUORENE
LC3	N	21	1,2-BENZONAPHTHACENE
LC3	N	22	2,3-BENZOFLUORENE
LC3	N	21	2,7-DIMETHYLANTHRACENE
LC3	N	15	4,4'-DIPHENYLBIPHENYL
LC3	.02	21	BENZO(A)PYRENE
LC3	.09	21	DIBENZ(A,H)ANTHRACENE
LC3	.26	21	7,12-DIMETHYLBENZ(A)ANTHRACENE
LC3	3.8	22	3-METHYL-CHOLANTHRENE
LC3	4.3E1	21	DIBENZO(A,I)PYRENE
LC3	4.5E1	21	BENZ(A)ANTHRACENE

LIST A-1 - AIR - HEALTH

MATE UNITS: MICROGRAMS/CUBIC METER

SAMPLE FRACTION	MATE VALUE	CATEGORY	SUBSTANCE
LC3	5.0E2	16A	POLYCHLORINATED BIPHENYLS
LC3	9.0E2	22	BENZO(B)FLUORANTHENE
LC3	9.0E2	22	BENZO(E)FLUORANTHENE
LC3	1.1E3	21	DIBENZO(A,)PYRENE
LC3	1.6E3	22	BENZO(K)FLUORANTHENE
LC3	1.6E3	22	INDENO(1,2,3,CD)PYRENE
LC3	1.6E3	21	PHENANTHRENE
LC3	1.8E3	21	METHYL CHRYSENES
LC3	2.2E3	21	CHRYSENE
LC3	2.5E3	21	PICENE
LC3	3.0E3	21	BENZO(E)PYRENE
LC3	3.7E3	21	DIBENZO(A,H)PYRENE
LC3	6.5E3	22	BENZO(J)FLUORANTHENE
LC3	9.0E3	15	TERPHENYLS
LC3	9.9E3	21	DIBENZ(A,C)ANTHRACENE
LC3	1.3E4	22	1,2:5,6-DIBENZOFLUORENE
LC3	1.6E4	21	BENZO(G)CHRYSENE
LC3	2.7E4	21	BENZO(C)PHENANTHRENE
LC3	3.0E4	21	METHYLPHENANTHRENES
LC3	3.4E4	16A	POLYCHLORINATED BENZENES
LC3	4.5E4	15	INDENE
LC3	5.6E4	21	ANTHRACENE
LC3	6.9E4	16A	CHLORONAPHTHALENES
LC3	6.9E4	23A	COLLIDINES
LC3	9.0E4	22	FLUORANTHENE
LC3	2.3E5	15	INDAN
LC3	2.3E5	21	PYRENE
LC4	N	4	BROMOPHENYL PHENYL ETHER
LC4	N	7B	CHLOROHYDROXY BENZOPHENONE
LC4	N	25	DIBENZOTHIOPHENE
LC4	N	7B	DIHYDRO(D)CARVONE
LC4	N	9	NAPHTHONITRILES
LC4	N	4	2-CHLORO-1,2-EPOXYPROPANE
LC4	N	25	2,2-BITHIOPHENE
LC4	N	7B	5,6-BENZO-9-ANTHRONE
LC4	9.9E2	25	BENZONAPHTHOTHIOPHENE
LC4	1.3E3	17	4-NITROBIPHENYL
LC4	5.0E3	17	NITROBENZENE
LC4	1.2E4	7B	CAMPHOR
LC4	1.3E4	17	1-CHLORO-2-NITROBENZENE
LC4	1.9E4	17	1-CHLORO-4-NITROBENZENE
LC4	2.3E4	25	BENZO(B)THIOPHENE

LIST A-1 - AIR - HEALTH

MATE UNITS: MICROGRAMS/CUBIC METER

SAMPLE FRACTION	MATE VALUE	CATEGORY	SUBSTANCE
LC4	2.5E4	7B	ISOPHORONE
LC4	4.1E4	7B	ACETOPHENONE
LC5	N	24	BENZO(B)NAPHTHO(2,3-D)FURAN
LC5	N	24	DIBENZOFURAN
LC5	N	24	METHYLDIBENZOFURANS
LC5	N	24	NAPHTHOFURANS
LC5	N	12	N-NITROSO-DIPENTYLAMINE
LC5	N	24	PHENANTHRO(9,10-B)FURAN
LC5	N	24	1,9-BENZOXANTHENE
LC5	1.3E3	12	N-METHYL-N-NITROSO-ANILINE
LC5	1.5E3	17	DINITROTOLUENES
LC5	2.4E3	12	N-NITROSO-DIPROPYLAMINE
LC5	4.5E3	17	METHOXYNITROBENZENES
LC5	3.0E4	17	NITROTOLUENES
LC5	7.4E4	12	N-NITROSO-DIPHENYLAMINE
LC5	5.9E5	24	TETRAHYDROFURAN
LC6	N	18C	ACENAPHTHOLS
LC6	N	23B	BENZO(C)QUINOLINE
LC6	N	23B	BENZO(F)QUINOLINE
LC6	N	23B	BENZO(H)QUINOLINE
LC6	N	23B	BENZ(A)ACRIDINE
LC6	N	23B	DIHYDROACRIDINE
LC6	N	23B	DIMETHYLQUINOLINES, DIMETHYLISOQUINOLINES
LC6	N	8D	DI-2-EHTYLHEXYL PHTHALATE
LC6	N	18A	ETHYLPHENOLS
LC6	N	23B	INDENO(1,2,3-IJ)ISOQUINOLINE
LC6	N	5C	ISOBORNEOL
LC6	N	8D	LONG CHAIN ESTERS
LC6	N	18C	PHENANTHROLS
LC6	N	8D	PHENYL BENZOATE
LC6	N	13A	1-ANTHRACENETHIOL
LC6	N	18C	2-HYDROXYDIBENZOFURAN
LC6	N	18C	2-HYDROXYFLUORENE
LC6	1.7E2	10C	2-AMINONAPHTHALENE
LC6	2.2E2	23B	DIBENZ(A,H)ACRIDINE
LC6	2.5E2	23B	DIBENZ(A,J)ACRIDINE
LC6	5.0E2	10C	ANISIDINES
LC6	8.0E2	13A	PERCHLOROMETHANETHIOL
LC6	1.0E3	23C	DIBENZO(C,G)CARBAZOLE
LC6	1.2E3	10A	METHYLAMINE

LIST A-1 - AIR - HEALTH

MATE UNITS: MICROGRAMS/CUBIC METER

SAMPLE FRACTION	MATE VALUE	CATEGORY	SUBSTANCE
LC6	2.0E3	18B	1,4-DIHYDROXYBENZENE
LC6	2.1E3	13A	BENZENETHIOL
LC6	2.7E3	23C	PYRROLE
LC6	4.3E3	23D	BENZOTHIAZOLE
LC6	4.5E3	10C	1,4-DIAMINOBENZENE
LC6	4.7E3	23D	METHYL BENZOTHIAZOLES
LC6	5.0E3	8D	PHTHALATE ESTERS
LC6	6.0E3	23C	DIBENZO(A,G)CARBAZOLE
LC6	6.8E3	18A	2,2'-DIHYDROXYDIPHENYLS
LC6	1.1E4	23B	BENZ(C)ACRIDINE
LC6	1.1E4	23C	INDOLE
LC6	1.2E4	23C	DIBENZO(A,I)CARBAZOLE
LC6	1.3E4	18A	XYLENOLS (DIMETHYL PHENOLS)
LC6	1.5E4	18A	POLYALKYL PHENOLS
LC6	1.6E4	23B	QUINOLINE; ISOQUINOLINE
LC6	1.8E4	5B	1-PHENYLETHANOL
LC6	1.9E4	23C	BENZO(A)CARBAZOLE
LC6	2.0E4	18B	CATECHOL (1,2-DIHYDROXYBENZENE)
LC6	2.2E4	18A	CRESOLS (METHYL PHENOLS)
LC6	2.3E4	23C	CARBAZOLE
LC6	2.3E4	19	CHLORINATED CRESOLS
LC6	2.3E4	23B	DIBENZ(C,H)ACRIDINE
LC6	2.3E4	18A	PHENYLPHENOLS
LC6	2.4E4	18A	ALKYL CRESOLS
LC6	2.5E4	10D	N,N-DIMETHYLANILINE
LC6	3.3E4	18A	2-METHOXYPHENOL
LC6	3.6E4	18B	1,2,3-TRIHYDROXYBENZENES
LC6	4.5E4	23C	METHYLINDOLES
LC6	5.5E4	23B	2-METHYLQUINOLINE
LC6	7.0E4	10B	MORPHOLINE
LC6	9.0E4	23B	ACRIDINE
LC6	9.0E4	5B	BORNEOL
LC6	1.1E5	18C	2-NAPHTHOL
LC6	1.2E5	18C	1-NAPHTHOL
LC6	1.5E5	18C	INDANOLS
LC6	1.9E5	5C	A-TERPINEOL
LC7	N	8A	LONG CHAIN ACIDS
LC7	1.0E2	20	2,4,6-TRINITROPHENOL
LC7	2.0E2	20	4,6-DINITRO-O-CRESOL
LC7	2.2E2	10C	4,4'-METHYLENE-BIS-(2-CHLOROANILINE)
LC7	5.0E2	19	PENTHACHLOROPHENOL
LC7	5.6E2	10C	1-AMINONAPHTHALENE

LIST A-1 - AIR - HEALTH

MATE UNITS: MICROGRAMS/CUBIC METER

SAMPLE FRACTION	MATE VALUE	CATEGORY	SUBSTANCE
LC7	6.8E2	20	DINITRO-P-CRESOL
LC7	1.4E3	20	DINITROPHENOLS
LC7	6.0E3	8A	PHTHALIC ACID
LC7	6.6E3	10C	3.3'-DICHLOROBENZIDINE
LC7	1.4E4	10C	BENZIDINE (4.4'-DIAMINOBIPHENYL)
LC7	1.4E4	11	1.2-DIPHENYLHYDRAZINE
LC7	2.5E4	8A	ACETIC ACID
LC7	3.0E4	8C	FORMAMIDE
LC7	4.6E4	20	2-AMINO-4.6-DINITROPHENOL
LC7	5.8E4	20	2-NITROPHENOL
LC7	8.8E4	8B	HYDROXYACETIC ACID
LC7	1.4E5	8A	BENZOIC ACID
LC7	4.5E5	8C	ACETAMIDE
LC8	N	8B	6-AMINOHEXANOIC ACID
LC8	N	14A	9.10-ANTHRAQUINONEDISULFONIC ACID
LC8	6.0E3	8A	PHTHALIC ACID
LC8	2.5E4	8A	ACETIC ACID
LC8	4.0E4	14A	BENZENESULFONIC ACID
LC12	1.6E4	20	4-NITROPHENOL
LC12	2.0E4	20	3-NITROPHENOL
NYD *	N	26A	ALKYL STIBINES
NYD	N	26C	COMPLEXED IRON
NYD	N	26C	COMPLEXED NICKEL
NYD	N	26C	COMPLEXED TIN
NYD	N	26C	COMPLEXED ZINC
NYD	N	26B	DIBENZE CHROMIUM
NYD	N	2A	DIBROMOCHLOROMETHANE
NYD	N	21	PERYLENE
NYD	N	9	1.3-DICYANO-L-HYDROXYBUTANE
NYD	N	23B	2.3-BENZ-4-AZAFLUORENE
NYD	1.0E2	26A	ORGANOTIN
NYD	1.5E2	26A	TETRAMETHYLLEAD
NYD	3.2E2	8B	B-PROPIOLACTONE
NYD	3.5E2	11	MONOMETHYLHYDRAZINE
NYD	1.0E3	11	N.N-DIMETHYLHYDRAZINE
NYD	2.0E3	11	-DIMETHYLAMINOAZOBENZENE
NYD	3.0E3	26C	COMPLEXED COPPER
NYD	3.0E3	9	TETRAMETHYLSUCCINONITRILE
NYD	3.5E3	26B	NICKELOCENE
NYD	2.3E4	9	BUTYRONITRILE
NYD	3.2E4	9	BENZONITRILE
NYD	3.2E4	26A	ORGANOGERMANES

* NOT YET DETERMINED

LIST A-1 - AIR - HEALTH

MATE UNITS: MICROGRAMS/CUBIC METER

SAMPLE FRACTION	MATE VALUE	CATEGORY	SUBSTANCE
NYD	6.0E4	26B	FERROCENE
NYD	3.0E5	5C	TERTIARY BUTANOL
SGC	N	13B	DIETHYL SULFIDE
SGC	1.0E3	13A	ETHANETHIOL
SGC	1.0E3	13A	METHANETHIOL
SGC	1.5E3	13A	N-BUTANETHIOL
SGC	2.4E4	13B	DIMETHYL SULFIDE
SGC	8.1E4	13A	PROPANETHIOLS

LIST A-2 - AIR - ECOLOGY

MATE UNITS: MICROGRAMS/CUBIC METER

* NOT YET ASSIGNED

SAMPLE FRACTION	MATE VALUE	CATEGORY	SUBSTANCE
C1	N *	1A	METHANE
C1	1.0	1B	ETHYLENE
C2	N	1A	ETHANE
C2	N	1B	PROPYLENE
C2	1.1E5	1C	ACETYLENE
C3	N	1B	BUTADIENES
C3	N	1B	BUTYLENES
C3	N	1C	BUTYNE
C3	N	11	DIAZOMETHANE
C3	N	2A	DICHLORODIFLUOROMETHANE
C3	N	10B	DIETHYLAMINE
C3	N	10B	DIMETHYLAMINE
C3	N	10B	ETHYLENEIMINE
C3	N	7A	FORMALDEHYDE
C3	N	2A	METHYL CHLORIDE
C3	N	1A	PROPANE
C3	N	1C	PROPYNE
C3	N	2B	VINYL CHLORIDE (CHLOROETHENE)
C4	N	7A	ACETALDEHYDE
C4	N	1A	BUTANES
C4	N	10A	ETHYLAMINE
C4	N	10B	ETHYLMETHYLAMINE
C4	N	2A	METHYL BROMIDE
C4	N	2A	TRICHLOROFLUOROMETHANE
C5	N	7B	ACETONE
C5	N	2A	CARBON TETRACHLORIDE
C5	N	4	CHLOROMETHYL METHYL ETHER
C5	N	1B	CYCLOHEXADIENE
C5	N	1B	CYCLOPENTADIENES
C5	N	1A	CYCLOPENTANE
C5	N	24	FURAN
C5	N	2A	METHYL IODIDE

LIST A-2 - AIR - ECOLOGY

MATE UNITS: MICROGRAMS/CUBIC METER

SAMPLE FRACTION	MATE VALUE	CATEGORY	SUBSTANCE
C5	N	1A	PENTANES
C5	N	1B	PENTENES
C5	N	7A	PROPIONALDEHYDE
C5	N	25	THIOPHENE
C5	N	2A	TRICHLOROETHANE
C5	N	26A	TRIMETHYLARSINE
C5	N	2B	1,1-DICHLOROETHENE
C5	N	2A	1,2-DICHLOROETHANE
C5	N	2B	1,2-DICHLOROETHENE
C5	N	2A	1,2-DICHLORO-1,2-DIFLUOROETHANE
C5	N	10A	3-AMINOPROPANE
C5	9.4E1	7A	ACROLEIN
C6	N	9	ACETONITRILE
C6	N	26A	ALKYL MERCURY
C6	N	15	BENZENE
C6	N	2A	BROMOCHLOROMETHANE
C6	N	2A	BROMODICHLOROMETHANE
C6	N	7B	BUTANONE
C6	N	10A	BUTYLAMINES
C6	N	7A	BUTYRALDEHYDE
C6	N	2A	CHLOROFORM (TRICHLOROMETHANE)
C6	N	1A	CYCLOHEXANE
C6	N	1B	CYCLOHEXENE
C6	N	2A	DICHLOROPROPANES
C6	N	2B	DICHLOROPROPENES
C6	N	5A	ETHANOL
C6	N	1B	HEPTENES
C6	N	1A	HEXANES
C6	N	1B	HEXENES
C6	N	5A	METHANOL
C6	N	11	N,N'-DIMETHYLHYDRAZINE
C6	N	23A	PICOLINES
C6	N	5C	TERTIARY PENTANOL
C6	N	9	1-CYANOETHANE
C6	N	5A	1-PROPANOL
C6	N	5B	2-BUTANOL
C6	N	4	2-CHLOROETHYL METHYL ETHER
C6	N	5B	2-PROPANOL (ISOPROPYL ALCOHOL)
C6	N	5B	2,6-DIMETHYL-4-HEPTANOL
C6	N	7A	3-METHYLBUTANAL
C6	N	10C	4-AMINOBIPHENYL

LIST A-2 - AIR - ECOLOGY

MATE UNITS: MICROGRAMS/CUBIC METER

SAMPLE FRACTION	MATE VALUE	CATEGORY	SUBSTANCE
C7	N	2A	BROMOBUTANES
C7	N	4	CHLOROETHYL ETHYL ETHER
C7	N	4	CHLOROMETHYL ETHYL ETHER
C7	N	1A	HEPTANES
C7	N	3B	HYDROXYBENZOIC ACID
C7	N	5A	ISOBUTYLALCOHOL
C7	N	3	ISOPROPYL ETHER
C7	N	8D	METHYL METHACRYLATE
C7	N	4	1-CHLORO-1,2-OXETANE
C7	N	4	1,1'-DICHLORODIETHYL ETHER
C7	N	4	1,1'-DICHLOROMETHYL ETHER
C7	N	3	1,3-DIOXANE
C7	N	3	1,4-DIOXANE
C7	N	3	2-METHOXY BIPHENYL
C7	N	8C	6-HEXANELACTAM (E-CAPROLACTAM)
C8	N	8D	ADIPATES
C8	N	8A	BENZOIC ACID
C8	N	16A	CHLOROBENZENE
C8	N	23A	COLLIDINES
C8	N	10A	CYCLOHEXYLAMINE
C8	N	2A	DIBROMODICHLOROMETHANE
C8	N	15	ETHYL BENZENE
C8	N	8A	FORMIC ACID
C8	N	8A	LONG CHAIN ACIDS
C8	N	8A	MALEIC ACID
C8	N	13B	METHYL DISULFIDE
C8	N	2A	METHYLENE CHLORIDE (DICHLOROMETHANE)
C8	N	25	METHYLTHIOPHENES
C8	N	5A	N-BUTANOL
C8	N	1A	OCTANES
C8	N	5A	PENTANOLS (PRIMARY)
C8	N	5B	PENTANOLS (SECONDARY)
C8	N	23A	PHENYL PYRIDINES
C8	N	23A	PYRIDINE
C8	N	2B	TETRACHLOROETHENE
C8	N	15	TOLUENE
C8	N	6B	1-CHLORO-2,3-EPOXYPROPANE (A-EPICHLOROHYDRIN)
C8	N	10A	1,2-DIAMINOETHANE
C8	N	3	2-ETHYL-4-METHYL-1, 3-DIOXOLANES

LIST A-2 - AIR - ECOLOGY

MATE UNITS: MICROGRAMS/CUBIC METER

SAMPLE FRACTION	MATE VALUE	CATEGORY	SUBSTANCE
C9	N	8D	ADIPATES
C9	N	16A	BROMO AND DIBROMOBENZENES
C9	N	23A	CHLOROPYRIDINE
C9	N	25	DIMETHYLTHIOPHENES
C9	N	13B	DIPHENYL SULFIDE
C9	N	15	ISOPROPYL BENZENE
C9	N	1A	NONANES
C9	N	12	N-NITROSO-DIMETHYLAMINE
C9	N	10A	PROPANOLAMINE
C9	N	15	PROPYL BENZENE
C9	N	15	STYRENE
C9	N	15	XYLENES
C9	N	4	1,2-DICHLORODIISOPROPYL ETHER
C9	N	4	1,2-DICHLOROETHYL ETHYL ETHER
C9	N	16A	2-CHLOROTOLUENE
C10	N	8D	ADIPATES
C10	N	1A	ALKANES (C>9)
C10	N	4	A-CHLOROBUTYL ETHYL ETHER
C10	N	7A	BENZALDEHYDE
C10	N	24	BENZOFURAN
C10	N	2A	BROMOFORM (TRIBROMOMETHANE)
C10	N	23A	CHLOROPYRIDINE
C10	N	23A	DI AND POLYSUBSTITUTED PYRIDINES
C10	N	15	DIALKYL BENZENES
C10	N	22	DICYCLOPENTADIENE
C10	N	10A	ETHANOLAMINE
C10	N	8D	METHYL BENZOATE
C10	N	12	N-NITROSO-DIETHYLAMINE
C10	N	25	TRI AND TETRAMETHYL THIOPHENES
C10	N	15	TRIMETHYLBENZENES
C10	N	16A	1,2-DICHLOROBENZENE
C10	N	16A	1,3-DICHLOROBENZENE
C10	N	18B	1,3-DIHYDROXYBENZENE
C10	N	16A	1,4-DICHLOROBENZENE
C10	N	19	2-CHLOROPHENOL
C10	N	4	2,2'-DICHLORODIETHYL ETHER
C10	N	6B	2,3-EPOXY-1-PROPANOL
C10	N	8B	3-HYDROXYPROPANOIC ACID LACTONE

LIST A-2 - AIR - ECOLOGY

MATE UNITS: MICROGRAMS/CUBIC METER

SAMPLE FRACTION	MATE VALUE	CATEGORY	SUBSTANCE
C11	N	9	ACRYLONITRILE
C11	N	1A	ALKANES (C>9)
C11	N	10C	AMINOTOLUENES (METHYL ANILINES)
C11	N	10C	ANILINE
C11	N	4	BIS-(1-CHLOROISOPROPYL) ETHER
C11	N	15	BUTYLBENZENE
C11	N	15	DIALKYL BENZENES
C11	N	14B	DIMETHYL SULFOXIDE
C11	N	10C	DIMETHYLANILINE (XYLIDINES)
C11	N	6A	ETHYLENE GLYCOL (1,2-ETHANEDIOL)
C11	N	2A	HEXACHLOROCYCLOHEXANE (LINDANE)
C11	N	2A	HEXACHLOROETHANE
C11	N	21	NAPHTHALENE
C11	N	18A	PHENOL
C11	N	6A	PROPYLENE GLYCOL (1,2-PROPANEDIOL)
C11	N	7B	TETRACHLOROACETONE
C11	N	15	TETRAMETHYLBENZENES
C11	N	16B	-CHLOROTOLUENE
C11	N	2A	1-CHLOROOCTANE
C11	N	20	3-NITROPHENOL
C12	N	1A	ALKANES (C>9)
C12	N	18A	ALKYL CRESOLS
C12	N	5A	A-HYDROXYTOLUENE (BENZYL ALCOHOL)
C12	N	16A	BROMO AND DIBROMOBENZENES
C12	N	16A	BROMOCHLOROBENZENES
C12	N	18A	CRESOLS (METHYL PHENOLS)
C12	N	15	DIALKYL BENZENES
C12	N	17	NITROBENZENE
C12	N	12	N-NITROSO-DIPROPYLAMINE
C12	N	26A	TETRAETHYLLEAD
C12	N	15	TETRAHYDRONAPHTHALENE
C12	N	20	2-NITROPHENOL
C12	N	19	2,4-DICHLOROPHENOL
GC11	N	12	N-NITROSO-DIISOPROPYLAMINE
LC1	N	1A	ALKANES (C>9)
LC1	N	26A	TETRAETHYLLEAD

LIST A-2 - AIR - ECOLOGY

MATE UNITS: MICROGRAMS/CUBIC METER

SAMPLE FRACTION	MATE VALUE	CATEGORY	SUBSTANCE
LC2	N	15	BIPHENYL
LC2	N	16B	BIS-(CHLOROMETHYL)BENZENE
LC2	N	16A	BROMO AND DIBROMOBENZENES
LC2	N	16A	BROMOCHLOROBENZENES
LC2	N	16A	CHLORONAPHTHALENES
LC2	N	22	CYCLOPENTANONAPHTHALENE
LC2	N	15	DIHYDRONAPHTHALENE
LC2	N	21	DIMETHYL NAPHTHALENES
LC2	N	22	FLUORENE
LC2	N	28	HEXACHLOROBUTADIENE
LC2	N	28	HEXACHLOROCYCLOPENTADIENE
LC2	N	15	INDAN
LC2	N	15	INDENE
LC2	N	21	MONOALKYL NAPHTHALENES
LC2	N	21	NAPHTHALENE
LC2	N	16A	POLYCHLORINATED BENZENES
LC2	N	16A	POLYCHLORINATED BIPHENYLS
LC2	N	15	TETRAHYDRONAPHTHALENE
LC2	N	15	4,4'-DIPHENYLBIPHENYL
LC3	N	21	ACENAPHTHENE
LC3	N	21	ACENAPHTHYLENE
LC3	N	21	ANTHRACENE
LC3	N	21	BENZO(A)PYRENE
LC3	N	22	BENZO(B)FLUORANTHENE
LC3	N	21	BENZO(C)PHENANTHRENE
LC3	N	22	BENZO(E)FLUORANTHENE
LC3	N	21	BENZO(E)PYRENE
LC3	N	21	BENZO(6)CHRYSENE
LC3	N	21	BENZO(6,H,I)PERYLENE
LC3	N	22	BENZO(J)FLUORANTHENE
LC3	N	22	BENZO(K)FLUORANTHENE
LC3	N	21	BENZ(A)ANTHRACENE
LC3	N	16A	CHLORONAPHTHALENES
LC3	N	21	CHRYSENE
LC3	N	23A	COLLIDINES
LC3	N	21	CORONENE
LC3	N	22	CYCLOPENTA(DEF)PHENANTHRENE
LC3	N	21	DIBENZO(A,)PYRENE
LC3	N	21	DIBENZO(A,H)PYRENE
LC3	N	21	DIBENZO(A,I)PYRENE
LC3	N	21	DIBENZ(A,C)ANTHRACENE
LC3	N	21	DIBENZ(A,H)ANTHRACENE

LIST A-2 - AIR - ECOLOGY

MATE UNITS: MICROGRAMS/CUBIC METER

SAMPLE FRACTION	MATE VALUE	CATEGORY	SUBSTANCE
LC3	N	21	DIMETHYL PYRENES
LC3	N	22	FLUORANTHENE
LC3	N	15	INDAN
LC3	N	15	INDENE
LC3	N	22	INDENO(1,2,3,CD)PYRENE
LC3	N	21	METHYL CHRYSENES
LC3	N	21	METHYLPHENANTHRENES
LC3	N	23A	MONOSUBSTITUTED ALKYL PYRIDINES
LC3	N	21	NAPHTHACENE
LC3	N	21	PHENANTHRENE
LC3	N	21	PHENYL NAPHTHALENES
LC3	N	21	PICENE
LC3	N	16A	POLYCHLORINATED BENZENES
LC3	N	16A	POLYCHLORINATED BIPHENYLS
LC3	N	21	PYRENE
LC3	N	15	TERPHENYLS
LC3	N	22	TRIBENZYLENEBENZENE (TRUXENE)
LC3	N	21	TRIPHENYLENE
LC3	N	21	1-METHYLPYRENE
LC3	N	22	1,2-BENZOFLUORENE
LC3	N	21	1,2-BENZONAPHTHACENE
LC3	N	22	1,2:5,6-DIBENZOFLUORENE
LC3	N	22	2,3-BENZOFLUORENE
LC3	N	21	2,7-DIMETHYLANTHRACENE
LC3	N	22	3-METHYL-CHOLANTHRENE
LC3	N	15	4,4'-DIPHENYLBIPHENYL
LC3	N	21	7,12-DIMETHYLBENZ(A)ANTHRACENE
LC4	N	7B	ACETOPHENONE
LC4	N	25	BENZONAPHTHOTHIOPHENE
LC4	N	25	BENZO(B)THIOPHENE
LC4	N	4	BROMOPHENYL PHENYL ETHER
LC4	N	7B	CAMPHOR
LC4	N	7B	CHLOROHYDROXY BENZOPHENONE
LC4	N	25	DIBENZOTHIOPHENE
LC4	N	7B	DIHYDRO(D)CARVONE
LC4	N	7B	ISOPHORONE
LC4	N	9	NAPHTHONITRILES
LC4	N	17	NITROBENZENE
LC4	N	17	1-CHLORO-2-NITROBENZENE
LC4	N	17	1-CHLORO-4-NITROBENZENE
LC4	N	4	2-CHLORO-1,2-EPOXYPROPANE
LC4	N	25	2,2-BITHIOPHENE

LIST A-2 - AIR - ECOLOGY

MATE UNITS: MICROGRAMS/CUBIC METER

SAMPLE FRACTION	MATE VALUE	CATEGORY	SUBSTANCE
LC4	N	17	4-NITROBIPHENYL
LC4	N	7B	5,6-BENZO-9-ANTHRONE
LC5	N	24	BENZO(B)NAPHTHO(2,3-D)FURAN
LC5	N	24	DIBENZOFURAN
LC5	N	17	DINITROTOLUENES
LC5	N	17	METHOXYNITROBENZENES
LC5	N	24	METHYLDIBENZOFURANS
LC5	N	24	NAPHTHOFURANS
LC5	N	17	NITROTOLUENES
LC5	N	12	N-METHYL-N-NITROSO-ANILINE
LC5	N	12	N-NITROSO-DIPENTYLAMINE
LC5	N	12	N-NITROSO-DIPHENYLAMINE
LC5	N	12	N-NITROSO-DIPROPYLAMINE
LC5	N	24	PHENANTHRO(9,10-B)FURAN
LC5	N	24	TETRAHYDROFURAN
LC5	N	24	1,9-BENZOXANTHENE
LC6	N	18C	ACENAPHTHOLS
LC6	N	23B	ACRIDINE
LC6	N	18A	ALKYL CRESOLS
LC6	N	10C	ANISIDINES
LC6	N	5C	A-TERPINEOL
LC6	N	13A	BENZENETHIOL
LC6	N	23D	BENZOTHIAZOLE
LC6	N	23C	BENZO(A)CARBAZOLE
LC6	N	23B	BENZO(C)QUINOLINE
LC6	N	23B	BENZO(F)QUINOLINE
LC6	N	23B	BENZO(H)QUINOLINE
LC6	N	23B	BENZ(A)ACRIDINE
LC6	N	23B	BENZ(C)ACRIDINE
LC6	N	5B	BORNEOL
LC6	N	23C	CARBAZOLE
LC6	N	18B	CATECHOL (1,2-DIHYDROXYBENZENE)
LC6	N	19	CHLORINATED CRESOLS
LC6	N	18A	CRESOLS (METHYL PHENOLS)
LC6	N	23C	DIBENZO(A,G)CARBAZOLE
LC6	N	23C	DIBENZO(A,I)CARBAZOLE
LC6	N	23C	DIBENZO(C,D)CARBAZOLE
LC6	N	23B	DIBENZ(A,H)ACRIDINE
LC6	N	23B	DIBENZ(A,J)ACRIDINE
LC6	N	23B	DIBENZ(C,H)ACRIDINE

LIST A-2 - AIR - ECOLOGY

MATE UNITS: MICROGRAMS/CUBIC METER

SAMPLE FRACTION	MATE VALUE	CATEGORY	SUBSTANCE
LC6	N	23B	DIHYDROACRIDINE
LC6	N	23B	DIMETHYLQUINOLINES, DIMETHYLISOQUINOLINES
LC6	N	8D	DI-2-EHTYLHEXYL PHTHALATE
LC6	N	18A	ETHYLPHENOLS
LC6	N	18C	INDANOLS
LC6	N	23B	INDENO(1,2,3-IJ)ISOQUINOLINE
LC6	N	23C	INDOLE
LC6	N	5C	ISOBORNEOL
LC6	N	8D	LONG CHAIN ESTERS
LC6	N	23D	METHYL BENZOTHIAZOLES
LC6	N	10A	METHYLAMINE
LC6	N	23C	METHYLINDOLES
LC6	N	10B	MORPHOLINE
LC6	N	10D	N,N-DIMETHYLANILINE
LC6	N	13A	PERCHLOROMETHANETHIOL
LC6	N	18C	PHENANTHROLS
LC6	N	8D	PHENYL BENZOATE
LC6	N	18A	PHENYLPHENOLS
LC6	N	8D	PHTHALATE ESTERS
LC6	N	18A	POLYALKYL PHENOLS
LC6	N	23C	PYRROLE
LC6	N	23B	QUINOLINE; ISOQUINOLINE
LC6	N	18A	XYLENOLS (DIMETHYL PHENOLS)
LC6	N	13A	1-ANTHRACENETHIOL
LC6	N	18C	1-NAPHTHOL
LC6	N	5B	1-PHENYLETHANOL
LC6	N	18B	1,2,3-TRIHYDROXYBENZENES
LC6	N	10C	1,4-DIAMINOBENZENE
LC6	N	18B	1,4-DIHYDROXYBENZENE
LC6	N	10C	2-AMINONAPHTHALENE
LC6	N	18C	2-HYDROXYDIBENZOFURAN
LC6	N	18C	2-HYDROXYFLUORENE
LC6	N	18A	2-METHOXYPHENOL
LC6	N	23B	2-METHYLQUINOLINE
LC6	N	18C	2-NAPHTHOL
LC6	N	18A	2,2'-DIHYDROXYDIPHENYLS
LC7	N	8C	ACETAMIDE
LC7	N	8A	ACETIC ACID
LC7	N	10C	BENZIDINE (4,4'-DIAMINOBIPHENYL)
LC7	N	8A	BENZOIC ACID
LC7	N	20	DINITROPHENOLS
LC7	N	20	DINITRO-P-CRESOL

LIST A-2 - AIR - ECOLOGY

MATE UNITS: MICROGRAMS/CUBIC METER

SAMPLE FRACTION	MATE VALUE	CATEGORY	SUBSTANCE
LC7	N	8C	FORMAMIDE
LC7	N	8B	HYDROXYACETIC ACID
LC7	N	8A	LONG CHAIN ACIDS
LC7	N	19	PENTHACHLOROPHENOL
LC7	N	8A	PHTHALIC ACID
LC7	N	10C	1-AMINONAPHTHALENE
LC7	N	11	1,2-DIPHENYLHYDRAZINE
LC7	N	20	2-AMINO-4,6-DINITROPHENOL
LC7	N	20	2-NITROPHENOL
LC7	N	20	2,4,6-TRINITROPHENOL
LC7	N	10C	3,3'-DICHLOROBENZIDINE
LC7	N	10C	4,4'-METHYLENE-BIS-(2-CHLOROANILINE)
LC7	N	20	4,6-DINITRO-O-CRESOL
LC8	N	8A	ACETIC ACID
LC8	N	14A	BENZENESULFONIC ACID
LC8	N	8A	PHTHALIC ACID
LC8	N	8B	6-AMINOHEXANOIC ACID
LC8	N	14A	9,10-ANTHRAQUINONEDISULFONIC ACID
LC12	N	20	3-NITROPHENOL
LC12	N	20	4-NITROPHENOL
NYD *	N	26A	ALKYL STIBINES
NYD	N	9	BENZONITRILE
NYD	N	9	BUTYRONITRILE
NYD	N	8B	B-PROPIOLACTONE
NYD	N	26C	COMPLEXED COPPER
NYD	N	26C	COMPLEXED IRON
NYD	N	26C	COMPLEXED NICKEL
NYD	N	26C	COMPLEXED TIN
NYD	N	26C	COMPLEXED ZINC
NYD	N	26B	DIBENZE CHROMIUM
NYD	N	2A	DIBROMOCHLOROMETHANE
NYD	N	26B	FERROCENE
NYD	N	11	MONOMETHYLHYDRAZINE
NYD	N	26B	NICKELOCENE
NYD	N	11	N,N-DIMETHYLHYDRAZINE
NYD	N	26A	ORGANOGERMANES
NYD	N	26A	ORGANOTIN
NYD	N	21	PERYLENE
NYD	N	5C	TERTIARY BUTANOL
NYD	N	26A	TETRAMETHYLLEAD
NYD	N	9	TETRAMETHYLSUCCINONITRILE
NYD	N	11	-DIMETHYLAMINOAZOBENZENE

* NOT YET DETERMINED

LIST A-2 - AIR - ECOLOGY

MATE UNITS: MICROGRAMS/CUBIC METER

SAMPLE FRACTION	MATE VALUE	CATEGORY	SUBSTANCE
NYD	N	9	1,3-DICYANO-L-HYDROXYBUTANE
NYD	N	23B	2,3-BENZ-4-AZAFLUORENE
SGC	N	13B	DIETHYL SULFIDE
SGC	N	13B	DIMETHYL SULFIDE
SGC	N	13A	ETHANETHIOL
SGC	N	13A	METHANETHIOL
SGC	N	13A	N-BUTANETHIOL
SGC	N	13A	PROPANETHIOLS

LIST A-3 - WATER - HEALTH

MATE UNITS: MICROGRAMS/LITER

SAMPLE FRACTION	MATE VALUE	CATEGORY	SUBSTANCE
C1	4.9E7	1A	METHANE
C1	8.6E7	1B	ETHYLENE
C2	8.0E7	1C	ACETYLENE
C2	9.2E7	1A	ETHANE
C2	1.3E8	1B	PROPYLENE
C3	N *	1B	BUTYLENES
C3	N	1C	BUTYNE
C3	5.0E3	10B	ETHYLENEIMINE
C3	6.0E3	11	DIAZOMETHANE
C3	2.4E4	7A	FORMALDEHYDE
C3	3.8E4	2B	VINYL CHLORIDE (CHLOROETHENE)
C3	2.7E5	10B	DIMETHYLAMINE
C3	1.1E6	10B	DIETHYLAMINE
C3	3.2E6	2A	METHYL CHLORIDE
C3	2.5E7	1C	PROPYNE
C3	3.3E7	1B	BUTADIENES
C3	7.4E7	2A	DICHLORODIFLUOROMETHANE
C3	1.4E8	1A	PROPANE

* NOT YET ASSIGNED

LIST A-3 - WATER - HEALTH

MATE UNITS: MICROGRAMS/LITER

SAMPLE FRACTION	MATE VALUE	CATEGORY	SUBSTANCE
C4	N	10B	ETHYLMETHYLAMINE
C4	2.7E5	10A	ETHYLAMINE
C4	9.0E5	2A	METHYL BROMIDE
C4	2.7E6	7A	ACETALDEHYDE
C4	2.1E7	1A	BUTANES
C4	8.4E7	2A	TRICHLOROFLUOROMETHANE
C5	N	1B	CYCLOHEXADIENE
C5	N	1A	CYCLOPENTANE
C5	N	24	FURAN
C5	N	1B	PENTENES
C5	N	26A	TRIMETHYLARSINE
C5	N	10A	3-AMINOPROPANE
C5	3.0E3	7A	ACROLEIN
C5	1.3E4	2A	METHYL IODIDE
C5	6.0E4	25	THIOPHENE
C5	5.4E5	7A	PROPIONALDEHYDE
C5	5.5E5	4	CHLOROMETHYL METHYL ETHER
C5	6.0E5	2A	TRICHLOROETHANE
C5	9.0E5	2A	CARBON TETRACHLORIDE
C5	3.0E6	1B	CYCLOPENTADIENES
C5	3.0E6	2A	1,2-DICHLOROETHANE
C5	3.9E6	2B	1,1-DICHLOROETHENE
C5	1.1E7	2B	1,2-DICHLOROETHENE
C5	2.7E7	1A	PENTANES
C5	3.6E7	7B	ACETONE
C5	7.4E7	2A	1,2-DICHLORO-1,2-DIFLUOROETHANE
C6	N	2A	BROMODICHLOROMETHANE
C6	N	1B	HEPTENES
C6	N	1B	HEXENES
C6	N	4	2-CHLOROETHYL METHYL ETHER
C6	1.5E2	26A	ALKYL MERCURY
C6	5.0E2	11	N,N'-DIMETHYLHYDRAZINE
C6	2.0E4	10C	4-AMINOBIPHENYL
C6	2.7E4	9	1-CYANOETHANE
C6	4.5E4	15	BENZENE
C6	1.7E5	2B	DICHLOROPROPENES
C6	2.3E5	10A	BUTYLAMINES
C6	5.3E5	23A	PICOLINES
C6	6.0E5	2A	CHLOROFORM (TRICHLOROMETHANE)
C6	6.8E5	5C	TERTIARY PENTANOL

LIST A-3 - WATER - HEALTH

MATE UNITS: MICROGRAMS/LITER

SAMPLE FRACTION	MATE VALUE	CATEGORY	SUBSTANCE
C6	1.1E6	9	ACETONITRILE
C6	1.7E6	7A	BUTYRALDEHYDE
C6	2.4E6	5B	2,6-DIMETHYL-4-HEPTANOL
C6	3.9E6	5A	METHANOL
C6	5.3E6	2A	DICHLOROPROPANES
C6	5.4E6	1A	HEXANES
C6	5.8E6	7A	3-METHYLBUTANAL
C6	6.8E6	5B	2-BUTANOL
C6	7.5E6	5A	1-PROPANOL
C6	8.9E6	7B	BUTANONE
C6	1.5E7	1B	CYCLOHEXENE
C6	1.5E7	5B	2-PROPANOL (ISOPROPYL ALCOHOL)
C6	1.6E7	1A	CYCLOHEXANE
C6	1.7E7	2A	BROMOCHLOROMETHANE
C6	2.9E7	5A	ETHANOL
C7	N	2A	BROMOBUTANES
C7	N	4	CHLOROETHYL ETHYL ETHER
C7	N	4	CHLOROMETHYL ETHYL ETHER
C7	N	4	1-CHLORO-1,2-OXETANE
C7	N	4	1,1'-DICHLOROMETHYL ETHER
C7	N	3	2-METHOXY BIPHENYL
C7	1.5E4	8C	6-HEXANELACTAM (E-CAPROLACTAM)
C7	4.5E5	4	1,1'-DICHLORODIETHYL ETHER
C7	6.0E5	8B	HYDROXYBENZOIC ACID
C7	2.3E6	5A	ISOBUTYLALCOHOL
C7	2.7E6	3	1,3-DIOXANE
C7	2.7E6	3	1,4-DIOXANE
C7	6.2E6	8D	METHYL METHACRYLATE
C7	1.6E7	3	ISOPROPYL ETHER
C7	2.4E7	1A	HEPTANES
C8	N	2A	DIBROMODICHLOROMETHANE
C8	N	8A	LONG CHAIN ACIDS
C8	N	13B	METHYL DISULFIDE
C8	N	23A	PHENYL PYRIDINES
C8	1.5E4	8A	MALEIC ACID
C8	1.4E5	8A	FORMIC ACID
C8	2.3E5	23A	PYRIDINE
C8	2.4E5	6B	1-CHLORO-2,3-EPOXYPROPANE (A-EPICHLOROHYDRIN)
C8	2.8E5	8D	ADIPATES
C8	3.4E5	25	METHYLTHIOPHENES

LIST A-3 - WATER - HEALTH

MATE UNITS: MICROGRAMS/LITER

SAMPLE FRACTION	MATE VALUE	CATEGORY	SUBSTANCE
C8	3.4E5	3	2-ETHYL-4-METHYL-1, 3-DIOXOLANES
C8	3.8E5	10A	1,2-DIAMINOETHANE
C8	6.0E5	10A	CYCLOHEXYLAMINE
C8	1.0E6	23A	COLLIDINES
C8	2.1E6	8A	BENZOIC ACID
C8	2.3E6	5A	N-BUTANOL
C8	3.9E6	2A	METHYLENE CHLORIDE (DICHLOROMETHANE)
C8	5.3E6	16A	CHLOROBENZENE
C8	5.4E6	5A	PENTANOLS (PRIMARY)
C8	5.4E6	5B	PENTANOLS (SECONDARY)
C8	5.6E6	15	TOLUENE
C8	6.5E6	15	ETHYL BENZENE
C8	1.0E7	2B	TETRACHLOROETHENE
C8	2.2E7	1A	OCTANES
C9	N	16A	BROMO AND DIBROMOBENZENES
C9	N	25	DIMETHYLTHIOPHENES
C9	N	4	1,2-DICHLORODIISOPROPYL ETHER
C9	N	4	1,2-DICHLOROETHYL ETHYL ETHER
C9	1.8E1	12	N-NITROSO-DIMETHYLAMINE
C9	7.2E4	23A	CHLOROPYRIDINE
C9	2.8E5	8D	ADIPATES
C9	9.5E5	15	ISOPROPYL BENZENE
C9	1.4E6	13B	DIPHENYL SULFIDE
C9	1.9E6	10A	PROPANOLAMINE
C9	3.3E6	15	PROPYL BENZENE
C9	3.8E6	16A	2-CHLOROTOLUENE
C9	6.3E6	15	STYRENE
C9	6.5E6	15	XYLENES
C9	1.6E7	1A	NONANES

LIST A-3 - WATER - HEALTH

MATE UNITS: MICROGRAMS/LITER

SAMPLE FRACTION	MATE VALUE	CATEGORY	SUBSTANCE
C10	N	1A	ALKANES (C>9)
C10	N	4	A-CHLOROBUTYL ETHYL ETHER
C10	N	24	BENZOFURAN
C10	N	25	TRI AND TETRAMETHYL THIOPHENES
C10	N	16A	1,3-DICHLOROBENZENE
C10	5.0	18B	1,3-DIHYDROXYBENZENE
C10	5.0	19	2-CHLOROPHENOL
C10	1.8E3	12	N-NITROSO-DIETHYLAMINE
C10	4.8E3	8B	3-HYDROXYPROPANOIC ACID LACTONE
C10	7.2E4	23A	CHLOROPYRIDINE
C10	7.5E4	2A	BROMOFORM (TRIBROMOMETHANE)
C10	9.0E4	10A	ETHANOLAMINE
C10	2.4E5	22	DICYCLOPENTADIENE
C10	2.8E5	8D	ADIPATES
C10	4.1E5	23A	DI AND POLYSUBSTITUTED PYRIDINES
C10	4.5E5	4	2,2'-DICHLORODIETHYL ETHER
C10	8.8E5	7A	BENZALDEHYDE
C10	1.8E6	15	TRIMETHYLBENZENES
C10	2.3E6	8D	METHYL BENZOATE
C10	2.3E6	6B	2,3-EPOXY-1-PROPANOL
C10	3.4E6	15	DIALKYL BENZENES
C10	4.5E6	16A	1,2-DICHLOROBENZENE
C10	6.8E6	16A	1,4-DICHLOROBENZENE
C11	N	1A	ALKANES (C>9)
C11	N	4	BIS-(1-CHLOROISOPROPYL) ETHER
C11	N	7B	TETRACHLOROACETONE
C11	N	15	TETRAMETHYLBENZENES
C11	N	2A	1-CHLOROOCTANE
C11	5.0	18A	PHENOL
C11	5.0	20	3-NITROPHENOL
C11	1.2E3	14B	DIMETHYL SULFOXIDE
C11	1.7E3	10C	AMINOTOLUENES (METHYL ANILINES)
C11	7.5E3	2A	HEXACHLOROCYCLOHEXANE (LINDANE)
C11	7.5E4	16B	-CHLOROTOLUENE
C11	1.5E5	6A	ETHYLENE GLYCOL (1,2-ETHANEDIOL)
C11	1.5E5	2A	HEXACHLOROETHANE

LIST A-3 - WATER - HEALTH

MATE UNITS: MICROGRAMS/LITER

SAMPLE FRACTION	MATE VALUE	CATEGORY	SUBSTANCE
C11	3.0E5	10C	ANILINE
C11	3.8E5	10C	DIMETHYLANILINE (XYLIDINES)
C11	6.8E5	9	ACRYLONITRILE
C11	7.5E5	21	NAPHTHALENE
C11	3.4E6	15	BUTYLBENZENE
C11	3.4E6	15	DIALKYL BENZENES
C11	5.4E6	6A	PROPYLENE GLYCOL (1,2-PROPANEDIOL)
C12	N	1A	ALKANES (C>9)
C12	N	16A	BROMO AND DIBROMOBENZENES
C12	N	16A	BROMOCHLOROBENZENES
C12	5.0	18A	ALKYL CRESOLS
C12	5.0	18A	CRESOLS (METHYL PHENOLS)
C12	5.0	20	2-NITROPHENOL
C12	5.0	19	2,4-DICHLOROPHENOL
C12	1.5E3	26A	TETRAETHYLLEAD
C12	3.6E4	12	N-NITROSO-DIPROPYLAMINE
C12	7.5E4	17	NITROBENZENE
C12	8.3E5	5A	A-HYDROXYTOLUENE (BENZYL ALCOHOL)
C12	2.0E6	15	TETRAHYDRONAPHTHALENE
C12	3.4E6	15	DIALKYL BENZENES
GC11	5.8E5	12	N-NITROSO-DIISOPROPYLAMINE
LC1	N	1A	ALKANES (C>9)
LC1	1.5E3	26A	TETRAETHYLLEAD

LIST A-3 - WATER - HEALTH

MATE UNITS: MICROGRAMS/LITER

SAMPLE FRACTION	MATE VALUE	CATEGORY	SUBSTANCE
LC2	N	16B	BIS-(CHLOROMETHYL)BENZENE
LC2	N	16A	BROPO AND DIBROMOBENZENES
LC2	N	16A	BROMOCHLOROBENZENES
LC2	N	22	CYCLOPENTANONAPHTHALENE
LC2	N	22	FLUORENE
LC2	N	15	4,4'-DIPHENYLBIPHENYL
LC2	1.7E3	2B	HEXACHLOROCYCLOPENTADIENE
LC2	7.5E3	16A	POLYCHLORINATED BIPHENYLS
LC2	1.5E4	15	BIPHENYL
LC2	6.1E4	2B	HEXACHLOROBUTADIENE
LC2	5.1E5	16A	POLYCHLORINATED BENZENES
LC2	6.0E5	15	INDENE
LC2	7.5E5	21	NAPHTHALENE
LC2	1.0E6	16A	CHLORONAPHTHALENES
LC2	2.0E6	15	DIHYDRONAPHTHALENE
LC2	2.0E6	15	TETRAHYDRONAPHTHALENE
LC2	3.4E6	21	DIMETHYL NAPHTHALENES
LC2	3.4E6	15	INDAN
LC2	3.4E6	21	MONOALKYL NAPHTHALENES
LC3	N	21	ACENAPHTHENE
LC3	N	21	ACENAPHTHYLENE
LC3	N	21	BENZO(G,H,I)PERYLENE
LC3	N	21	CORONENE
LC3	N	22	CYCLOPENTA(DEF)PHENANTHRENE
LC3	N	21	DIMETHYL PYRENES
LC3	N	23A	MONOSUBSTITUTED ALKYL PYRIDINES
LC3	N	21	NAPHTHACENE
LC3	N	21	PHENYL NAPHTHALENES
LC3	N	22	TRIBENZYLENEBENZENE (TRUXENE)
LC3	N	21	TRIPHENYLENE
LC3	N	21	1-METHYLPYRENE
LC3	N	22	1,2-BENZOFLUORENE
LC3	N	21	1,2-BENZONAPHTHACENE
LC3	N	22	2,3-BENZOFLUORENE
LC3	N	21	2,7-DIMETHYLANTHRACENE
LC3	N	15	4,4'-DIPHENYLBIPHENYL
LC3	.30	21	BENZO(A)PYRENE
LC3	1.4	21	DIBENZ(A,H)ANTHRACENE
LC3	3.9	21	7,12-DIMETHYLBENZ(A)ANTHRACENE
LC3	5.6E1	22	3-METHYL-CHOLANTHRENE
LC3	6.5E2	21	DIBENZO(A,I)PYRENE
LC3	6.7E2	21	BENZ(A)ANTHRACENE

LIST A-3 - WATER - HEALTH

MATE UNITS: MICROGRAMS/LITER

SAMPLE FRACTION	MATE VALUE	CATEGORY	SUBSTANCE
LC3	7.5E3	16A	POLYCHLORINATED BIPHENYLS
LC3	1.3E4	22	BENZO(B)FLUORANTHENE
LC3	1.4E4	22	BENZO(E)FLUORANTHENE
LC3	1.6E4	21	DIBENZO(A,)PYRENE
LC3	2.4E4	22	INDENO(1,2,3,CD)PYRENE
LC3	2.4E4	21	PHENANTHRENE
LC3	2.5E4	22	BENZO(K)FLUORANTHENE
LC3	2.7E4	21	METHYL CHRYSENES
LC3	3.3E4	21	CHRYSENE
LC3	3.8E4	21	PICENE
LC3	4.6E4	21	BENZO(E)PYRENE
LC3	5.6E4	21	DIBENZO(A,H)PYRENE
LC3	9.8E4	22	BENZO(J)FLUORANTHENE
LC3	1.4E5	15	TERPHENYLS
LC3	1.5E5	21	DIBENZ(A,C)ANTHRACENE
LC3	2.0E5	22	1,2:5,6-DIBENZOFLUORENE
LC3	2.4E5	21	BENZO(B)CHRYSENE
LC3	4.1E5	21	BENZO(C)PHENANTHRENE
LC3	4.6E5	21	METHYLPHENANTHRENES
LC3	5.1E5	16A	POLYCHLORINATED BENZENES
LC3	6.8E5	15	INDENE
LC3	8.4E5	21	ANTHRACENE
LC3	1.0E6	16A	CHLORONAPHTHALENES
LC3	1.0E6	23A	COLLIDINES
LC3	1.4E6	22	FLUORANTHENE
LC3	3.4E6	15	INDAN
LC3	3.5E6	21	PYRENE
LC4	N	4	BROMOPHENYL PHENYL ETHER
LC4	N	7B	CHLOROHYDROXY BENZOPHENONE
LC4	N	25	DIBENZOTHIOPHENE
LC4	N	7B	DIHYDRO(D)CARVONE
LC4	N	9	NAPHTHONITRILES
LC4	N	4	2-CHLORO-1,2-EPOXYPROPANE
LC4	N	25	2,2-BITHIOPHENE
LC4	N	7B	5,6-BENZO-9-ANTHRONE
LC4	1.5E4	25	BENZONAPHTHOTHIOPHENE
LC4	2.0E4	17	4-NITROBIPHENYL
LC4	7.5E4	17	NITROBENZENE
LC4	1.8E5	7B	CAMPHOR
LC4	2.0E5	17	1-CHLORO-2-NITROBENZENE
LC4	2.9E5	17	1-CHLORO-4-NITROBENZENE
LC4	3.5E5	25	BENZO(B)THIOPHENE

LIST A-3 - WATER - HEALTH

MATE UNITS: MICROGRAMS/LITER

SAMPLE FRACTION	MATE VALUE	CATEGORY	SUBSTANCE
LC4	3.8E5	7B	ISOPHORONE
LC4	6.1E5	7B	ACETOPHENONE
LC5	N	24	BENZO(B)NAPHTHO(2,3-D)FURAN
LC5	N	24	DIBENZOFURAN
LC5	N	24	METHYLDIBENZOFURANS
LC5	N	24	NAPHTHOFURANS
LC5	N	12	N-NITROSO-DIPENTYLAMINE
LC5	N	24	PHENANTHRO(9,10-B)FURAN
LC5	N	24	1,9-BENZOXANTHENE
LC5	1.9E4	12	N-METHYL-N-NITROSO-ANILINE
LC5	2.3E4	17	DINITROTOLUENES
LC5	3.6E4	12	N-NITROSO-DIPROPYLAMINE
LC5	6.8E4	17	METHOXYNITROBENZENES
LC5	4.5E5	17	NITROTOLUENES
LC5	1.1E6	12	N-NITROSO-DIPHENYLAMINE
LC5	9.0E6	24	TETRAHYDROFURAN
LC6	N	23B	BENZO(C)QUINOLINE
LC6	N	23B	BENZO(F)QUINOLINE
LC6	N	23B	BENZO(H)QUINOLINE
LC6	N	23B	BENZ(A)ACRIDINE
LC6	N	23B	DIHYDROACRIDINE
LC6	N	23B	DIMETHYLQUINOLINES, DIMETHYLISOQUINOLINES
LC6	N	8D	DI-2-EHTYLHEXYL PHTHALATE
LC6	N	23B	INDENO(1,2,3-IJ)ISOQUINOLINE
LC6	N	5C	ISOBORNEOL
LC6	N	8D	LONG CHAIN ESTERS
LC6	N	8D	PHENYL BENZOATE
LC6	N	13A	1-ANTHRACENETHIOL
LC6	N	18C	ACENAPHTHOLS
LC6	5.0	18A	ALKYL CRESOLS
LC6	5.0	18B	CATECHOL (1,2-DIHYDROXYBENZENE)
LC6	5.0	19	CHLORINATED CRESOLS
LC6	5.0	18A	CRESOLS (METHYL PHENOLS)
LC6	5.0	18A	ETHYLPHENOLS
LC6	5.0	18C	INDANOLS
LC6	5.0	18C	PHENANTHROLS
LC6	5.0	18A	PHENYLPHENOLS
LC6	5.0	18A	POLYALKYL PHENOLS
LC6	5.0	18A	XYLENOLS (DIMETHYL PHENOLS)
LC6	5.0	18C	1-NAPHTHOL

LIST A-3 - WATER - HEALTH

MATE UNITS: MICROGRAMS/LITER

SAMPLE FRACTION	MATE VALUE	CATEGORY	SUBSTANCE
LC6	5.0	18B	1,2,3-TRIHYDROXYBENZENES
LC6	5.0	18B	1,4-DIHYDROXYBENZENE
LC6	5.0	18C	2-HYDROXYDIBENZOFURAN
LC6	5.0	18C	2-HYDROXYFLUORENE
LC6	5.0	18A	2-METHOXYPHENOL
LC6	5.0	18C	2-NAPHTHOL
LC6	5.0	18A	2,2'-DIHYDROXYDIPHENYLS
LC6	1.5E3	23C	DIBENZO(C,D)CARBAZOLE
LC6	2.5E3	10C	2-AMINONAPHTHALENE
LC6	3.4E3	23B	DIBENZ(A,H)ACRIDINE
LC6	3.7E3	23B	DIBENZ(A,J)ACRIDINE
LC6	7.5E3	10C	ANISIDINES
LC6	1.2E4	13A	PERCHLOROMETHANETHIOL
LC6	1.8E4	10A	METHYLAMINE
LC6	3.1E4	13A	BENZENETHIOL
LC6	4.0E4	23C	PYRROLE
LC6	6.4E4	23D	BENZOTHIAZOLE
LC6	6.8E4	10C	1,4-DIAMINOBENZENE
LC6	7.1E4	23D	METHYL BENZOTHIAZOLES
LC6	7.5E4	8D	PHTHALATE ESTERS
LC6	9.0E4	23C	DIBENZO(A,G)CARBAZOLE
LC6	1.6E5	23B	BENZ(C)ACRIDINE
LC6	1.7E5	23C	INDOLE
LC6	1.8E5	23C	DIBENZO(A,I)CARBAZOLE
LC6	2.4E5	23B	QUINOLINE; ISOQUINOLINE
LC6	2.7E5	5B	1-PHENYLETHANOL
LC6	2.8E5	23C	BENZO(A)CARBAZOLE
LC6	3.4E5	23C	CARBAZOLE
LC6	3.5E5	23B	DIBENZ(C,H)ACRIDINE
LC6	3.8E5	10D	N,N-DIMETHYLANILINE
LC6	6.8E5	23C	METHYLINDOLES
LC6	8.3E5	23B	2-METHYLQUINOLINE
LC6	1.1E6	10B	MORPHOLINE
LC6	1.4E6	23B	ACRIDINE
LC6	1.4E6	5B	BORNEOL
LC6	2.9E6	5C	A-TERPINEOL
LC7	N	8A	LONG CHAIN ACIDS
LC7	5.0	20	DINITROPHENOLS
LC7	5.0	20	DINITRO-P-CRESOL
LC7	5.0	19	PENTHACHLOROPHENOL
LC7	5.0	20	2-AMINO-4,6-DINITROPHENOL
LC7	5.0	20	2-NITROPHENOL

LIST A-3 - WATER - HEALTH

MATE UNITS: MICROGRAMS/LITER

SAMPLE FRACTION	MATE VALUE	CATEGORY	SUBSTANCE
LC7	5.0	20	2,4,6-TRINITROPHENOL
LC7	5.0	20	4,6-DINITRO-O-CRESOL
LC7	3.3E3	10C	4,4'-METHYLENE-BIS-(2-CHLOROANILINE)
LC7	8.5E3	10C	1-AMINONAPHTHALENE
LC7	9.0E4	8A	PHTHALIC ACID
LC7	9.9E4	10C	3,3'-DICHLOROBENZIDINE
LC7	2.0E5	11	1,2-DIPHENYLHYDRAZINE
LC7	2.1E5	10C	BENZIDINE (4,4'-DIAMINOBIPHENYL)
LC7	3.8E5	8A	ACETIC ACID
LC7	4.5E5	8C	FORMAMIDE
LC7	1.3E6	8B	HYDROXYACETIC ACID
LC7	2.1E6	8A	BENZOIC ACID
LC7	6.8E6	8C	ACETAMIDE
LC8	N	8B	6-AMINOHEXANOIC ACID
LC8	N	14A	9,10-ANTHRAQUINONEDISULFONIC ACID
LC8	9.0E4	8A	PHTHALIC ACID
LC8	3.8E5	8A	ACETIC ACID
LC8	6.0E5	14A	BENZENESULFONIC ACID
LC12	5.0	20	3-NITROPHENOL
LC12	5.0	20	4-NITROPHENOL
NYD *	N	26A	ALKYL STIBINES
NYD	N	26C	COMPLEXED IRON
NYD	N	26C	COMPLEXED NICKEL
NYD	N	26C	COMPLEXED TIN
NYD	N	26C	COMPLEXED ZINC
NYD	N	26B	DIBENZE CHROMIUM
NYD	N	2A	DIBROMOCHLOROMETHANE
NYD	N	21	PERYLENE
NYD	N	9	1,3-DICYANO-L-HYDROXYBUTANE
NYD	N	23B	2,3-BENZ-4-AZAFLUORENE
NYD	1.5E3	26A	ORGANOTIN
NYD	1.6E3	8B	B-PROPIOLACTONE
NYD	2.3E3	26A	TETRAMETHYLLEAD
NYD	5.3E3	11	MONOMETHYLHYDRAZINE
NYD	1.5E4	11	N,N-DIMETHYLHYDRAZINE
NYD	3.0E4	11	-DIMETHYLAMINOAZOBENZENE
NYD	4.5E4	26C	COMPLEXED COPPER
NYD	4.5E4	9	TETRAMETHYLSUCCINONITRILE
NYD	5.2E4	26B	NICKELOCENE
NYD	3.4E5	9	BUTYRONITRILE
NYD	4.7E5	26A	ORGANOGERMANES
NYD	4.9E5	9	BENZONITRILE

* NOT YET DETERMINED

LIST A-3 - WATER - HEALTH

MATE UNITS: MICROGRAMS/LITER

SAMPLE FRACTION	MATE VALUE	CATEGORY	SUBSTANCE
NYD	9.0E5	26B	FERROCENE
NYD	4.5E6	5C	TERTIARY BUTANOL
SGC	N	13B	DIETHYL SULFIDE
SGC	1.5E4	13A	ETHANETHIOL
SGC	1.5E4	13A	METHANETHIOL
SGC	2.3E4	13A	N-BUTANETHIOL
SGC	3.6E5	13B	DIMETHYL SULFIDE
SGC	1.2E6	13A	PROPANETHIOLS

LIST A-4 - WATER - ECOLOGY

MATE UNITS: MICROGRAMS/LITER

SAMPLE FRACTION	MATE VALUE	CATEGORY	SUBSTANCE
C1	1.0E4	1B	ETHYLENE
C1	1.0E5	1A	METHANE
C2	N *	1C	ACETYLENE
C2	N	1A	ETHANE
C2	1.0E5	1B	PROPYLENE
C3	N	1B	BUTYLENES
C3	N	1C	BUTYNE
C3	N	11	DIAZOMETHANE
C3	N	10B	ETHYLENEIMINE
C3	N	1C	PROPYNE
C3	1.0E3	1B	BUTADIENES
C3	1.0E3	10B	DIETHYLAMINE
C3	1.0E3	10B	DIMETHYLAMINE
C3	1.0E3	7A	FORMALDEHYDE
C3	1.0E5	2A	DICHLORODIFLUOROMETHANE
C3	1.0E5	2A	METHYL CHLORIDE
C3	1.0E5	1A	PROPANE
C3	1.0E5	2B	VINYL CHLORIDE (CHLOROETHENE)

* NOT YET ASSIGNED

LIST A-4 - WATER - ECOLOGY

MATE UNITS: MICROGRAMS/LITER

SAMPLE FRACTION	MATE VALUE	CATEGORY	SUBSTANCE
C4	N	7A	ACETALDEHYDE
C4	N	10B	ETHYLMETHYLAMINE
C4	N	2A	TRICHLOROFLUOROMETHANE
C4	1.0E3	10A	ETHYLAMINE
C4	1.0E5	1A	BUTANES
C4	1.0E5	2A	METHYL BROMIDE
C5	N	1B	CYCLOHEXADIENE
C5	N	1B	CYCLOPENTADIENES
C5	N	24	FURAN
C5	N	2A	METHYL IODIDE
C5	N	1B	PENTENES
C5	N	25	THIOPHENE
C5	N	26A	TRIMETHYLARSINE
C5	N	2A	1,2-DICHLORO-1,2-DIFLUOROETHANE
C5	N	10A	3-AMINOPROPANE
C5	1.0E2	7A	ACROLEIN
C5	1.0E3	2A	CARBON TETRACHLORIDE
C5	1.0E3	1A	PENTANES
C5	1.0E3	2A	TRICHLOROETHANE
C5	4.5E3	4	CHLOROMETHYL METHYL ETHER
C5	1.0E4	7A	PROPIONALDEHYDE
C5	1.0E4	2B	1,1-DICHLOROETHENE
C5	1.0E4	2A	1,2-DICHLOROETHANE
C5	1.0E4	2B	1,2-DICHLOROETHENE
C5	1.0E5	7B	ACETONE
C5	1.0E5	1A	CYCLOPENTANE
C6	N	2A	BROMOCHLOROMETHANE
C6	N	2A	BROMODICHLOROMETHANE
C6	N	2A	CHLOROFORM (TRICHLOROMETHANE)
C6	N	1B	CYCLOHEXENE
C6	N	1B	HEXENES
C6	N	11	N,N'-DIMETHYLHYDRAZINE
C6	N	23A	PICOLINES
C6	N	9	1-CYANOETHANE
C6	N	4	2-CHLOROETHYL METHYL ETHER
C6	N	5B	2,6-DIMETHYL-4-HEPTANOL
C6	N	10C	4-AMINOBIPHENYL
C6	.02	26A	ALKYL MERCURY
C6	1.0E2	7A	BUTYRALDEHYDE
C6	1.0E3	15	BENZENE

LIST A-4 - WATER - ECOLOGY

MATE UNITS: MICROGRAMS/LITER

SAMPLE FRACTION	MATE VALUE	CATEGORY	SUBSTANCE
C6	1.0E3	1A	CYCLOHEXANE
C6	1.0E3	2A	DICHLOROPROPANES
C6	1.0E3	2B	DICHLOROPROPENES
C6	1.0E3	7A	3-METHYLBUTANAL
C6	1.0E4	5A	1-PROPANOL
C6	1.0E4	5B	2-PROPANOL (ISOPROPYL ALCOHOL)
C6	1.0E5	9	ACETONITRILE
C6	1.0E5	7B	BUTANONE
C6	1.0E5	10A	BUTYLAMINES
C6	1.0E5	5A	ETHANOL
C6	1.0E5	1B	HEPTENES
C6	1.0E5	1A	HEXANES
C6	1.0E5	5A	METHANOL
C6	1.0E5	5C	TERTIARY PENTANOL
C6	1.0E5	5B	2-BUTANOL
C7	N	2A	BROMOBUTANES
C7	N	4	CHLOROETHYL ETHYL ETHER
C7	N	4	CHLOROMETHYL ETHYL ETHER
C7	N	8B	HYDROXYBENZOIC ACID
C7	N	4	1-CHLORO-1,2-OXETANE
C7	N	4	1,1'-DICHLORODIETHYL ETHER
C7	N	4	1,1'-DICHLOROMETHYL ETHER
C7	N	3	1,3-DIOXANE
C7	N	3	2-METHOXY BIPHENYL
C7	N	8C	6-HEXANELACTAM (E-CAPROLACTAM)
C7	1.0E4	5A	ISOBUTYLALCOHOL
C7	1.0E4	3	ISOPROPYL ETHER
C7	1.0E4	8D	METHYL METHACRYLATE
C7	1.0E4	3	1,4-DIOXANE
C7	1.0E5	1A	HEPTANES
C8	N	8D	ADIPATES
C8	N	8A	BENZOIC ACID
C8	N	23A	COLLIDINES
C8	N	2A	DIBROMODICHLOROMETHANE
C8	N	8A	FORMIC ACID
C8	N	8A	LONG CHAIN ACIDS
C8	N	8A	MALEIC ACID
C8	N	13B	METHYL DISULFIDE
C8	N	25	METHYLTHIOPHENES
C8	N	1A	OCTANES

LIST A-4 - WATER - ECOLOGY

MATE UNITS: MICROGRAMS/LITER

SAMPLE FRACTION	MATE VALUE	CATEGORY	SUBSTANCE
C8	N	5B	PENTANOLS (SECONDARY)
C8	N	23A	PHENYL PYRIDINES
C8	N	3	2-ETHYL-4-METHYL-1, 3-DIOXOLANES
C8	1.0E2	16A	CHLOROBENZENE
C8	1.0E3	15	ETHYL BENZENE
C8	1.0E3	2B	TETRACHLOROETHENE
C8	1.0E3	15	TOLUENE
C8	1.0E3	6B	1-CHLORO-2,3-EPOXYPROPANE (A-EPICHLOROHYDRIN)
C8	1.0E3	10A	1,2-DIAMINOETHANE
C8	1.0E4	10A	CYCLOHEXYLAMINE
C8	1.0E4	2A	METHYLENE CHLORIDE (DICHLOROMETHANE)
C8	1.0E4	5A	PENTANOLS (PRIMARY)
C8	1.0E4	23A	PYRIDINE
C8	1.0E5	5A	N-BUTANOL
C9	N	8D	ADIPATES
C9	N	16A	BROMO AND DIBROMOBENZENES
C9	N	23A	CHLORGPYRIDINE
C9	N	25	DIMETHYLTHIOPHENES
C9	N	13B	DIPHENYL SULFIDE
C9	N	1A	NONANES
C9	N	12	N-NITROSO-DIMETHYLAMINE
C9	N	10A	PROPANOLAMINE
C9	N	4	1,2-DICHLORODIISOPROPYL ETHER
C9	N	4	1,2-DICHLOROETHYL ETHYL ETHER
C9	N	16A	2-CHLOROTOLUENE
C9	1.0E3	15	ISOPROPYL BENZENE
C9	1.0E3	15	PROPYL BENZENE
C9	1.0E3	15	STYRENE
C9	1.0E3	15	XYLENES

LIST A-4 - WATER - ECOLOGY

MATE UNITS: MICROGRAMS/LITER

SAMPLE FRACTION	MATE VALUE	CATEGORY	SUBSTANCE
C10	N	8D	ADIPATES
C10	N	1A	ALKANES (C>9)
C10	N	4	A-CHLOROBUTYL ETHYL ETHER
C10	N	7A	BENZALDEHYDE
C10	N	24	BENZOFURAN
C10	N	2A	BROMOFORM (TRIBROMOMETHANE)
C10	N	23A	CHLOROPYRIDINE
C10	N	23A	DI AND POLYSUBSTITUTED PYRIDINES
C10	N	8D	METHYL BENZOATE
C10	N	12	N-NITROSO-DIETHYLAMINE
C10	N	25	TRI AND TETRAMETHYL THIOPHENES
C10	N	15	TRIMETHYLBENZENES
C10	N	16A	1,3-DICHLOROBENZENE
C10	N	6B	2,3-EPOXY-1-PROPANOL
C10	1.0E2	22	DICYCLOPENTADIENE
C10	1.0E2	16A	1,2-DICHLOROBENZENE
C10	1.0E2	16A	1,4-DICHLOROBENZENE
C10	5.0E2	18B	1,3-DIHYDROXYBENZENE
C10	5.0E2	19	2-CHLOROPHENOL
C10	1.0E3	15	DIALKYL BENZENES
C10	1.0E4	10A	ETHANOLAMINE
C10	1.0E4	4	2,2'-DICHLORODIETHYL ETHER
C10	1.0E4	8B	3-HYDROXYPROPANOIC ACID LACTONE
C11	N	1A	ALKANES (C>9)
C11	N	10C	AMINOTOLUENES (METHYL ANILINES)
C11	N	4	BIS-(1-CHLOROISOPROPYL) ETHER
C11	N	15	BUTYLBENZENE
C11	N	14B	DIMETHYL SULFOXIDE
C11	N	10C	DIMETHYLANILINE (XYLIDINES)
C11	N	2A	HEXACHLOROETHANE
C11	N	7B	TETRACHLOROACETONE
C11	N	2A	1-CHLOROOCTANE
C11	1.0E2	2A	HEXACHLOROCYCLOHEXANE (LINDANE)
C11	1.0E2	21	NAPHTHALENE
C11	1.0E2	16B	-CHLOROTOLUENE
C11	5.0E2	18A	PHENOL

LIST A-4 - WATER - ECOLOGY

MATE UNITS: MICROGRAMS/LITER

SAMPLE FRACTION	MATE VALUE	CATEGORY	SUBSTANCE
C11	5.0E2	20	3-NITROPHENOL
C11	1.0E3	9	ACRYLONITRILE
C11	1.0E3	10C	ANILINE
C11	1.0E3	15	DIALKYL BENZENES
C11	1.0E4	6A	ETHYLENE GLYCOL (1,2-ETHANEDIOL)
C11	1.0E4	15	TETRAMETHYLBENZENES
C11	1.0E5	6A	PROPYLENE GLYCOL (1,2-PROPANEDIOL)
C12	N	1A	ALKANES (C>9)
C12	N	16A	BROMO AND DIBROMOBENZENES
C12	N	16A	BROMOCHLOROBENZENES
C12	N	12	N-NITROSO-DIPROPYLAMINE
C12	1.0E2	26A	TETRAETHYLLEAD
C12	5.0E2	18A	ALKYL CRESOLS
C12	5.0E2	18A	CRESOLS (METHYL PHENOLS)
C12	5.0E2	20	2-NITROPHENOL
C12	5.0E2	19	2,4-DICHLOROPHENOL
C12	1.0E3	15	DIALKYL BENZENES
C12	1.0E3	17	NITROBENZENE
C12	1.0E3	15	TETRAHYDRONAPHTHALENE
C12	1.0E4	5A	A-HYDROXYTOLUENE (BENZYL ALCOHOL)
GC11	N	12	N-NITROSO-DIISOPROPYLAMINE
LC1	N	1A	ALKANES (C>9)
LC1	1.0E2	26A	TETRAETHYLLEAD

LIST A-4 - WATER - ECOLOGY

MATE UNITS: MICROGRAMS/LITER

SAMPLE FRACTION	MATE VALUE	CATEGORY	SUBSTANCE
LC2	N	15	BIPHENYL
LC2	N	16B	BIS-(CHLOROMETHYL)BENZENE
LC2	N	16A	BROMO AND DIBROMOBENZENES
LC2	N	16A	BROMOCHLOROBENZENES
LC2	N	16A	CHLORONAPHTHALENES
LC2	N	22	CYCLOPENTANONAPHTHALENE
LC2	N	15	DIHYDRONAPHTHALENE
LC2	N	21	DIMETHYL NAPHTHALENES
LC2	N	22	FLUORENE
LC2	N	28	HEXACHLOROBUTADIENE
LC2	N	28	HEXACHLOROCYCLOPENTADIENE
LC2	N	15	INDAN
LC2	N	15	INDENE
LC2	N	21	MONOALKYL NAPHTHALENES
LC2	N	15	4,4'-DIPHENYLBIPHENYL
LC2	.01	16A	POLYCHLORINATED BIPHENYLS
LC2	1.0E2	21	NAPHTHALENE
LC2	1.0E2	16A	POLYCHLORINATED BENZENES
LC2	1.0E3	15	TETRAHYDRONAPHTHALENE
LC3	N	21	ACENAPHTHENE
LC3	N	21	ACENAPHTHYLENE
LC3	N	21	ANTHRACENE
LC3	N	21	BENZO(A)PYRENE
LC3	N	22	BENZO(B)FLUORANTHENE
LC3	N	21	BENZO(C)PHENANTHRENE
LC3	N	22	BENZO(E)FLUORANTHENE
LC3	N	21	BENZO(E)PYRENE
LC3	N	21	BENZO(G)CHRYSENE
LC3	N	21	BENZO(G,H,I)PERYLENE
LC3	N	22	BENZO(J)FLUORANTHENE
LC3	N	22	BENZO(K)FLUORANTHENE
LC3	N	21	BENZ(A)ANTHRACENE
LC3	N	16A	CHLORONAPHTHALENES
LC3	N	21	CHRYSENE
LC3	N	23A	COLLIDINES
LC3	N	21	CORONENE
LC3	N	22	CYCLOPENTA(DEF)PHENANTHRENE
LC3	N	21	DIBENZO(A,)PYRENE
LC3	N	21	DIBENZO(A,H)PYRENE
LC3	N	21	DIBENZO(A,I)PYRENE
LC3	N	21	DIBENZ(A,C)ANTHRACENE
LC3	N	21	DIBENZ(A,H)ANTHRACENE

LIST A-4 - WATER - ECOLOGY

MATE UNITS: MICROGRAMS/LITER

SAMPLE FRACTION	MATE VALUE	CATEGORY	SUBSTANCE
LC3	N	21	DIMETHYL PYRENES
LC3	N	22	FLUORANTHENE
LC3	N	15	INDAN
LC3	N	15	INDENE
LC3	N	22	INDENO(1,2,3,CD)PYRENE
LC3	N	21	METHYL CHRYSENES
LC3	N	21	METHYLPHENANTHRENES
LC3	N	23A	MONOSUBSTITUTED ALKYL PYRIDINES
LC3	N	21	NAPHTHACENE
LC3	N	21	PHENANTHRENE
LC3	N	21	PHENYL NAPHTHALENES
LC3	N	21	PICENE
LC3	N	21	PYRENE
LC3	N	15	TERPHENYLS
LC3	N	22	TRIBENZYLENEBENZENE (THUXENE)
LC3	N	21	TRIPHENYLENE
LC3	N	21	1-METHYLPYRENE
LC3	N	22	1,2-BENZOFLUORENE
LC3	N	21	1,2-BENZONAPHTHACENE
LC3	N	22	1,2:5,6-DIBENZOFLUORENE
LC3	N	22	2,3-BENZOFLUORENE
LC3	N	21	2,7-DIMETHYLANTHRACENE
LC3	N	22	3-METHYL-CHOLANTHRENE
LC3	N	15	4,4'-DIPHENYLBIPHENYL
LC3	N	21	7,12-DIMETHYLBENZ(A)ANTHRACENE
LC3	.01	16A	POLYCHLORINATED BIPHENYLS
LC3	1.0E2	16A	POLYCHLORINATED BENZENES
LC4	N	7B	ACETOPHENONE
LC4	N	25	BENZONAPHTHOTHIOPHENE
LC4	N	25	BENZO(B)THIOPHENE
LC4	N	4	BROMOPHENYL PHENYL ETHER
LC4	N	7B	CAMPHOR
LC4	N	7B	CHLOROHYDROXY BENZOPHENONE
LC4	N	25	DIBENZOTHIOPHENE
LC4	N	7B	DIHYDRO(D)CARVONE
LC4	N	7B	ISOPHORONE
LC4	N	9	NAPHTHONITRILES
LC4	N	17	1-CHLORO-4-NITROBENZENE
LC4	N	4	2-CHLORO-1,2-EPOXYPROPANE
LC4	N	25	2,2-BITHIOPHENE
LC4	N	17	4-NITROBIPHENYL
LC4	N	7B	5,6-BENZO-9-ANTHRONE

LIST A-4 - WATER - ECOLOGY

MATE UNITS: MICROGRAMS/LITER

SAMPLE FRACTION	MATE VALUE	CATEGORY	SUBSTANCE
LC4	1.0E3	17	NITROBENZENE
LC4	1.0E4	17	1-CHLORO-2-NITROBENZENE
LC5	N	24	BENZO(B)NAPHTHO(2,3-D)FURAN
LC5	N	24	DIBENZOFURAN
LC5	N	17	METHOXYNITROBENZENES
LC5	N	24	METHYLDIBENZOFURANS
LC5	N	24	NAPHTHOFURANS
LC5	N	12	N-METHYL-N-NITROSO-ANILINE
LC5	N	12	N-NITROSO-DIPENTYLAMINE
LC5	N	12	N-NITROSO-DIPHENYLAMINE
LC5	N	12	N-NITROSO-DIPROPYLAMINE
LC5	N	24	PHENANTHRO(9,10-B)FURAN
LC5	N	24	TETRAHYDROFURAN
LC5	N	24	1,9-BENZOXANTHENE
LC5	1.0E3	17	DINITROTOLUENES
LC5	1.0E3	17	NITROTOLUENES
LC6	N	23B	ACRIDINE
LC6	N	10C	ANISIDINES
LC6	N	5C	A-TERPINEOL
LC6	N	13A	BENZENETHIOL
LC6	N	23D	BENZOTHIAZOLE
LC6	N	23C	BENZO(A)CARBAZOLE
LC6	N	23B	BENZO(C)QUINOLINE
LC6	N	23B	BENZO(F)QUINOLINE
LC6	N	23B	BENZO(H)QUINOLINE
LC6	N	23B	BENZ(A)ACRIDINE
LC6	N	23B	BENZ(C)ACRIDINE
LC6	N	5B	BORNEOL
LC6	N	23C	CARBAZOLE
LC6	N	23C	DIBENZO(A,G)CARBAZOLE
LC6	N	23C	DIBENZO(A,I)CARBAZOLE
LC6	N	23C	DIBENZO(C,G)CARBAZOLE
LC6	N	23B	DIBENZ(A,H)ACRIDINE
LC6	N	23B	DIBENZ(A,J)ACRIDINE
LC6	N	23B	DIBENZ(C,H)ACRIDINE
LC6	N	23B	DIHYDROACRIDINE
LC6	N	23B	DIMETHYLQUINOLINES, DIMETHYLISOQUINOLINES
LC6	N	8D	DI-2-EHTYLHEXYL PHTHALATE
LC6	N	23B	INDENO(1,2,3-IJ)ISOQUINOLINE
LC6	N	23C	INDOLE

LIST A-4 - WATER - ECOLOGY

MATE UNITS: MICROGRAMS/LITER

SAMPLE FRACTION	MATE VALUE	CATEGORY	SUBSTANCE
LC6	N	5C	ISOBORNEOL
LC6	N	8D	LONG CHAIN ESTERS
LC6	N	23D	METHYL BENZOTHIAZOLES
LC6	N	23C	METHYLINDOLES
LC6	N	10D	N,N-DIMETHYLANILINE
LC6	N	13A	PERCHLOROMETHANETHIOL
LC6	N	8D	PHENYL BENZOATE
LC6	N	23C	PYRROLE
LC6	N	23B	QUINOLINE; ISOQUINOLINE
LC6	N	13A	1-ANTHRACENETHIOL
LC6	N	5B	1-PHENYLETHANOL
LC6	N	10C	1,4-DIAMINOBENZENE
LC6	N	23B	2-METHYLQUINOLINE
LC6	1.5	8D	PHTHALATE ESTERS
LC6	1.0E2	10C	2-AMINONAPHTHALENE
LC6	5.0E2	18C	ACENAPHTHOLS
LC6	5.0E2	18A	ALKYL CRESOLS
LC6	5.0E2	18B	CATECHOL (1,2-DIHYDROXYBENZENE)
LC6	5.0E2	19	CHLORINATED CRESOLS
LC6	5.0E2	18A	CRESOLS (METHYL PHENOLS)
LC6	5.0E2	18A	ETHYLPHENOLS
LC6	5.0E2	18C	INDANOLS
LC6	5.0E2	18C	PHENANTHROLS
LC6	5.0E2	18A	PHENYLPHENOLS
LC6	5.0E2	18A	POLYALKYL PHENOLS
LC6	5.0E2	18A	XYLENOLS (DIMETHYL PHENOLS)
LC6	5.0E2	18C	1-NAPHTHOL
LC6	5.0E2	18B	1,2,3-TRIHYDROXYBENZENES
LC6	5.0E2	18B	1,4-DIHYDROXYBENZENE
LC6	5.0E2	18C	2-HYDROXYDIBENZOFURAN
LC6	5.0E2	18C	2-HYDROXYFLUORENE
LC6	5.0E2	18A	2-METHOXYPHENOL
LC6	5.0E2	18C	2-NAPHTHOL
LC6	5.0E2	18A	2,2'-DIHYDROXYDIPHENYLS
LC6	1.0E3	10A	METHYLAMINE
LC6	1.0E4	10B	MORPHOLINE
LC7	N	8C	ACETAMIDE
LC7	N	8A	BENZOIC ACID
LC7	N	8C	FORMAMIDE
LC7	N	8B	HYDROXYACETIC ACID
LC7	N	8A	LONG CHAIN ACIDS
LC7	N	8A	PHTHALIC ACID

LIST A-4 - WATER - ECOLOGY

MATE UNITS: MICROGRAMS/LITER

SAMPLE FRACTION	MATE VALUE	CATEGORY	SUBSTANCE
LC7	N	11	1,2-DIPHENYLHYDRAZINE
LC7	N	10C	3,3'-DICHLOROBENZIDINE
LC7	N	10C	4,4'-METHYLENE-BIS-(2-CHLOROANILINE)
LC7	1.0E2	10C	BENZIDINE (4,4'-DIAMINOBIPHENYL)
LC7	1.0E2	10C	1-AMINONAPHTHALENE
LC7	5.0E2	20	DINITROPHENOLS
LC7	5.0E2	20	DINITRO-P-CRESOL
LC7	5.0E2	19	PENTHACHLOROPHENOL
LC7	5.0E2	20	2-AMINO-4,6-DINITROPHENOL
LC7	5.0E2	20	2-NITROPHENOL
LC7	5.0E2	20	2,4,6-TRINITROPHENOL
LC7	5.0E2	20	4,6-DINITRO-O-CRESOL
LC7	1.0E3	8A	ACETIC ACID
LC8	N	14A	BENZENESULFONIC ACID
LC8	N	8A	PHTHALIC ACID
LC8	N	8B	6-AMINOHEXANOIC ACID
LC8	N	14A	9,10-ANTHRAQUINONEDISULFONIC ACID
LC8	1.0E3	8A	ACETIC ACID
LC12	5.0E2	20	3-NITROPHENOL
LC12	5.0E2	20	4-NITROPHENOL

LIST A-4 - WATER - ECOLOGY

MATE UNITS: MICROGRAMS/LITER

* NOT YET DETERMINED

SAMPLE FRACTION	MATE VALUE	CATEGORY	SUBSTANCE
NYD *	N	26A	ALKYL STIBINES
NYD	N	9	BENZONITRILE
NYD	N	9	BUTYRONITRILE
NYD	N	8B	B-PROPIOLACTONE
NYD	N	26C	COMPLEXED COPPER
NYD	N	26C	COMPLEXED IRON
NYD	N	26C	COMPLEXED NICKEL
NYD	N	26C	COMPLEXED TIN
NYD	N	26C	COMPLEXED ZINC
NYD	N	26B	DIBENZE CHROMIUM
NYD	N	2A	DIBROMOCHLOROMETHANE
NYD	N	26B	FERROCENE
NYD	N	11	MONOMETHYLHYDRAZINE
NYD	N	26B	NICKELOCENE
NYD	N	11	N,N-DIMETHYLHYDRAZINE
NYD	N	26A	ORGANOGERMANES
NYD	N	26A	ORGANOTIN
NYD	N	21	PERYLENE
NYD	N	26A	TETRAMETHYLLEAD
NYD	N	9	TETRAMETHYLSUCCINONITRILE
NYD	N	11	-DIMETHYLAMINOAZOBENZENE
NYD	N	9	1,3-DICYANO-L-HYDROXYBUTANE
NYD	N	23B	2,3-BENZ-4-AZAFLUORENE
NYD	1.0E5	5C	TERTIARY BUTANOL
SGC	N	13B	DIETHYL SULFIDE
SGC	N	13B	DIMETHYL SULFIDE
SGC	N	13A	ETHANETHIOL
SGC	N	13A	METHANETHIOL
SGC	N	13A	N-BUTANETHIOL
SGC	N	13A	PROPANETHIOLS

LIST A-5 - SOLID - HEALTH

MATE UNITS: MICROGRAMS/GRAM

SAMPLE FRACTION	MATE VALUE	CATEGORY	SUBSTANCE
C1	9.8E4	1A	METHANE
C1	1.7E5	1B	ETHYLENE
C2	1.6E5	1C	ACETYLENE
C2	1.8E5	1A	ETHANE
C2	2.6E5	1B	PROPYLENE
C3	N *	1B	BUTYLENES
C3	N	1C	BUTYNE
C3	1.0E1	10B	ETHYLENEIMINE
C3	1.2E1	11	DIAZOMETHANE
C3	4.8E1	7A	FORMALDEHYDE
C3	7.6E1	2B	VINYL CHLORIDE (CHLOROETHENE)
C3	5.4E2	10B	DIMETHYLAMINE
C3	2.2E3	10B	DIETHYLAMINE
C3	6.4E3	2A	METHYL CHLORIDE
C3	5.0E4	1C	PROPYNE
C3	6.6E4	1B	BUTADIENES
C3	1.5E5	2A	DICHLORODIFLUOROMETHANE
C3	2.8E5	1A	PROPANE

* NOT YET ASSIGNED

LIST A-5 - SOLID - HEALTH

MATE UNITS: MICROGRAMS/GRAM

SAMPLE FRACTION	MATE VALUE	CATEGORY	SUBSTANCE
C4	N	10B	ETHYLMETHYLAMINE
C4	5.4E2	10A	ETHYLAMINE
C4	1.8E3	2A	METHYL BROMIDE
C4	5.4E3	7A	ACETALDEHYDE
C4	4.2E4	1A	BUTANES
C4	1.7E5	2A	TRICHLOROFLUOROMETHANE
C5	N	1B	CYCLOHEXADIENE
C5	N	1A	CYCLOPENTANE
C5	N	24	FURAN
C5	N	1B	PENTENES
C5	N	26A	TRIMETHYLARSINE
C5	N	10A	3-AMINOPROPANE
C5	7.5	7A	ACROLEIN
C5	2.6E1	2A	METHYL IODIDE
C5	1.4E2	25	THIOPHENE
C5	1.1E3	4	CHLOROMETHYL METHYL ETHER
C5	1.1E3	7A	PROPIONALDEHYDE
C5	1.4E3	2A	TRICHLOROETHANE
C5	1.8E3	2A	CARBON TETRACHLORIDE
C5	6.0E3	1B	CYCLOPENTADIENES
C5	6.0E3	2A	1,2-DICHLOROETHANE
C5	7.8E3	2B	1,1-DICHLOROETHENE
C5	2.2E4	2B	1,2-DICHLOROETHENE
C5	5.4E4	1A	PENTANES
C5	7.2E4	7B	ACETONE
C5	1.5E5	2A	1,2-DICHLORO-1,2-DIFLUOROETHANE
C6	N	2A	BROMODICHLOROMETHANE
C6	N	1B	HEPTENES
C6	N	1B	HEXENES
C6	N	4	2-CHLOROETHYL METHYL ETHER
C6	.30	26A	ALKYL MERCURY
C6	1.0	11	N,N'-DIMETHYLHYDRAZINE
C6	4.0E1	10C	4-AMINOBIPHENYL
C6	5.4E1	9	1-CYANOETHANE
C6	9.0E1	15	BENZENE
C6	3.4E2	2B	DICHLOROPROPENES
C6	4.5E2	10A	BUTYLAMINES
C6	1.1E3	23A	PICOLINES
C6	1.2E3	2A	CHLOROFORM (TRICHLOROMETHANE)
C6	1.4E3	5C	TERTIARY PENTANOL

LIST A-5 - SOLID - HEALTH

MATE UNITS: MICROGRAMS/GRAM

SAMPLE FRACTION	MATE VALUE	CATEGORY	SUBSTANCE
C6	2.1E3	9	ACETONITRILE
C6	3.3E3	7A	BUTYRALDEHYDE
C6	4.8E3	5B	2,6-DIMETHYL-4-HEPTANOL
C6	7.8E3	5A	METHANOL
C6	1.1E4	2A	DICHLOROPROPANES
C6	1.1E4	1A	HEXANES
C6	1.2E4	7A	3-METHYLBUTANAL
C6	1.4E4	5B	2-BUTANOL
C6	1.5E4	5A	1-PROPANOL
C6	1.8E4	7B	BUTANONE
C6	3.0E4	1B	CYCLOHEXENE
C6	3.0E4	5B	2-PROPANOL (ISOPROPYL ALCOHOL)
C6	3.2E4	1A	CYCLOHEXANE
C6	3.4E4	2A	BROMOCHLOROMETHANE
C6	5.8E4	5A	ETHANOL
C7	N	2A	BROMOBUTANES
C7	N	4	CHLOROETHYL ETHYL ETHER
C7	N	4	CHLOROMETHYL ETHYL ETHER
C7	N	4	1-CHLORO-1,2-OXETANE
C7	N	4	1,1'-DICHLOROMETHYL ETHER
C7	N	3	2-METHOXY BIPHENYL
C7	3.0	8C	6-HEXANELACTAM (E-CAPROLACTAM)
C7	9.0E2	4	1,1'-DICHLORODIETHYL ETHER
C7	1.2E3	8B	HYDROXYBENZOIC ACID
C7	4.5E3	5A	ISOBUTYLALCOHOL
C7	5.4E3	3	1,3-DIOXANE
C7	5.4E3	3	1,4-DIOXANE
C7	1.2E4	8D	METHYL METHACRYLATE
C7	3.2E4	3	ISOPROPYL ETHER
C7	4.8E4	1A	HEPTANES
C8	N	2A	DIBROMODICHLOROMETHANE
C8	N	8A	LONG CHAIN ACIDS
C8	N	13B	METHYL DISULFIDE
C8	N	23A	PHENYL PYRIDINES
C8	3.0E1	8A	MALEIC ACID
C8	2.7E2	8A	FORMIC ACID
C8	4.5E2	23A	PYRIDINE
C8	4.8E2	6B	1-CHLORO-2,3-EPOXYPROPANE (A-EPICHLOROHYDRIN)
C8	5.6E2	8D	ADIPATES
C8	6.8E2	3	2-ETHYL-4-METHYL-1, 3-DIOXOLANES

LIST A-5 - SOLID - HEALTH

MATE UNITS: MICROGRAMS/GRAM

SAMPLE FRACTION	MATE VALUE	CATEGORY	SUBSTANCE
C8	7.0E2	25	METHYLTHIOPHENES
C8	7.6E2	10A	1,2-DIAMINOETHANE
C8	1.2E3	10A	CYCLOHEXYLAMINE
C8	2.1E3	23A	COLLIDINES
C8	4.2E3	6A	BENZOIC ACID
C8	4.5E3	5A	N-BUTANOL
C8	7.8E3	2A	METHYLENE CHLORIDE (DICHLOROMETHANE)
C8	1.1E4	16A	CHLOROBENZENE
C8	1.1E4	5A	PENTANOLS (PRIMARY)
C8	1.1E4	5B	PENTANOLS (SECONDARY)
C8	1.1E4	15	TOLUENE
C8	1.3E4	15	ETHYL BENZENE
C8	2.0E4	28	TETRACHLOROETHENE
C8	4.4E4	1A	OCTANES
C9	N	16A	BROMO AND DIBROMOBENZENES
C9	N	25	DIMETHYLTHIOPHENES
C9	N	4	1,2-DICHLORODIISOPROPYL ETHER
C9	N	4	1,2-DICHLOROETHYL ETHYL ETHER
C9	.04	12	N-NITROSO-DIMETHYLAMINE
C9	1.4E2	23A	CHLOROPYRIDINE
C9	5.6E2	8D	ADIPATES
C9	1.9E3	15	ISOPROPYL BENZENE
C9	2.9E3	13B	DIPHENYL SULFIDE
C9	3.8E3	10A	PROPANOLAMINE
C9	6.6E3	15	PROPYL BENZENE
C9	7.5E3	16A	2-CHLOROTOLUENE
C9	1.3E4	15	STYRENE
C9	1.3E4	15	XYLENES
C9	3.2E4	1A	NONANES

LIST A-5 - SOLID - HEALTH

MATE UNITS: MICROGRAMS/GRAM

* NOT YET ASSIGNED

SAMPLE FRACTION	MATE VALUE	CATEGORY	SUBSTANCE
C10	N *	1A	ALKANES (C>9)
C10	N	4	A-CHLOROBUTYL ETHYL ETHER
C10	N	24	BENZOFURAN
C10	N	25	TRI AND TETRAMETHYL THIOPHENES
C10	.01	16A	1,3-DICHLOROBENZENE
C10	.01	18B	1,3-DIHYDROXYBENZENE
C10	3.6	19	2-CHLOROPHENOL
C10	9.6	12	N-NITROSO-DIETHYLAMINE
C10	1.4E2	8B	3-HYDROXYPROPANOIC ACID LACTONE
C10	1.5E2	23A	CHLOROPYRIDINE
C10	1.8E2	2A	BROMOFORM (TRIBROMOMETHANE)
C10	4.8E2	10A	ETHANOLAMINE
C10	5.6E2	22	DICYCLOPENTADIENE
C10	8.2E2	8D	ADIPATES
C10	9.0E2	23A	DI AND POLYSUBSTITUTED PYRIDINES
C10	1.8E3	4	2,2'-DICHLORODIETHYL ETHER
C10	3.6E3	7A	BENZALDEHYDE
C10	4.6E3	15	TRIMETHYLBENZENES
C10	5.2E3	8D	METHYL BENZOATE
C10	6.8E3	6B	2,3-EPOXY-1-PROPANOL
C10	9.0E3	15	DIALKYL BENZENES
C10	1.4E4	16A	1,2-DICHLOROBENZENE
		16A	1,4-DICHLOROBENZENE
C11	N	1A	ALKANES (C>9)
C11	N	4	BIS-(1-CHLOROISOPROPYL) ETHER
C11	N	7B	TETRACHLOROACETONE
C11	N	15	TETRAMETHYLBENZENES
C11	N	2A	1-CHLOROOCTANE
C11	.01	18A	PHENOL
C11	.01	20	3-NITROPHENOL
C11	1.5	16B	-CHLOROTOLUENE
C11	2.4	14B	DIMETHYL SULFOXIDE
C11	3.0	10C	AMINOTOLUENES (METHYL ANILINES)
C11	1.5E1	2A	HEXACHLOROCYCLOHEXANE (LINDANE)
C11	3.0E2	6A	ETHYLENE GLYCOL (1,2-ETHANEDIOL)
C11	3.0E2	2A	HEXACHLOROETHANE

LIST A-5 - SOLID - HEALTH

MATE UNITS: MICROGRAMS/GRAM

SAMPLE FRACTION	MATE VALUE	CATEGORY	SUBSTANCE
C11	6.0E2	10C	ANILINE
C11	7.5E2	10C	DIMETHYLANILINE (XYLIDINES)
C11	1.4E3	9	ACRYLONITRILE
C11	1.5E3	21	NAPHTHALENE
C11	6.8E3	15	BUTYLBENZENE
C11	6.8E3	15	DIALKYL BENZENES
C11	1.1E4	6A	PROPYLENE GLYCOL (1,2-PROPANEDIOL)
C12	N	1A	ALKANES (C>9)
C12	N	16A	BROMO AND DIBROMOBENZENES
C12	N	16A	BROMOCHLOROBENZENES
C12	.01	18A	ALKYL CRESOLS
C12	.01	18A	CRESOLS (METHYL PHENOLS)
C12	.01	20	2-NITROPHENOL
C12	.01	19	2,4-DICHLOROPHENOL
C12	3.0	26A	TETRAETHYLLEAD
C12	7.2E1	12	N-NITROSO-DIPROPYLAMINE
C12	1.5E2	17	NITROBENZENE
C12	1.7E3	5A	A-HYDROXYTOLUENE (BENZYL ALCOHOL)
C12	4.0E3	15	TETRAHYDRONAPHTHALENE
C12	6.8E3	15	DIALKYL BENZENES
6C11	1.2E3	12	N-NITROSO-DIISOPROPYLAMINE
LC1	N	1A	ALKANES (C>9)
LC1	3.0	26A	TETRAETHYLLEAD

LIST A-5 - SOLID - HEALTH

MATE UNITS: MICROGRAMS/GRAM

SAMPLE FRACTION	MATE VALUE	CATEGORY	SUBSTANCE
LC2	N	16A	POLYCHLORINATED BIPHENYLS
LC2	N	16B	BIS-(CHLOROMETHYL)BENZENE
LC2	N	16A	BROMO AND DIBROMOBENZENES
LC2	N	16A	BROMOCHLOROBENZENES
LC2	N	22	CYCLOPENTANONAPHTHALENE
LC2	N	22	FLUORENE
LC2	N	15	4,4'-DIPHENYLBIPHENYL
LC2	1.4	15	INDENE
LC2	3.4	28	HEXACHLOROCYCLOPENTADIENE
LC2	1.5E1	16A	CHLORONAPHTHALENES
LC2	3.0E1	15	BIPHENYL
LC2	1.2E2	28	HEXACHLOROBUTADIENE
LC2	1.0E3	16A	POLYCHLORINATED BENZENES
LC2	1.5E3	21	NAPHTHALENE
LC2	4.0E3	15	DIHYDRONAPHTHALENE
LC2	4.0E3	15	TETRAHYDRONAPHTHALENE
LC2	6.8E3	21	DIMETHYL NAPHTHALENES
LC2	6.8E3	15	INDAN
LC2	6.8E3	21	MONOALKYL NAPHTHALENES
LC3	N	16A	POLYCHLORINATED BIPHENYLS
LC3	N	21	ACENAPHTHENE
LC3	N	21	ACENAPHTHYLENE
LC3	N	21	BENZO(G,H,I)PERYLENE
LC3	N	21	CORONENE
LC3	N	22	CYCLOPENTA(DEF)PHENANTHRENE
LC3	N	21	DIMETHYL PYRENES
LC3	N	23A	MONOSUBSTITUTED ALKYL PYRIDINES
LC3	N	21	NAPHTHACENE
LC3	N	21	PHENYL NAPHTHALENES
LC3	N	22	TRIBENZYLENEBENZENE (TRUXENE)
LC3	N	21	TRIPHENYLENE
LC3	N	21	1-METHYLPYRENE
LC3	N	22	1,2-BENZOFLUORENE
LC3	N	21	1,2-BENZONAPHTHACENE
LC3	N	22	2,3-BENZOFLUORENE
LC3	N	21	2,7-DIMETHYLANTHRACENE
LC3	N	15	4,4'-DIPHENYLBIPHENYL
LC3	.003	21	DIBENZ(A,H)ANTHRACENE
LC3	.01	21	7,12-DIMETHYLBENZ(A)ANTHRACENE
LC3	.06	21	BENZO(A)PYRENE
LC3	.11	22	3-METHYL-CHOLANTHRENE
LC3	1.3	21	BENZ(A)ANTHRACENE

LIST A-5 - SOLID - HEALTH

MATE UNITS: MICROGRAMS/GRAM

SAMPLE FRACTION	MATE VALUE	CATEGORY	SUBSTANCE
LC3	1.3	21	DIBENZO(A,I)PYRENE
LC3	1.4	15	INDENE
LC3	1.5E1	16A	CHLORONAPHTHALENES
LC3	2.7E1	22	BENZO(B)FLUORANTHENE
LC3	2.8E1	22	BENZO(E)FLUORANTHENE
LC3	3.2E1	21	DIBENZO(A,)PYRENE
LC3	4.8E1	22	INDENO(1,2,3,CD)PYRENE
LC3	4.8E1	21	PHENANTHRENE
LC3	4.9E1	22	BENZO(K)FLUORANTHENE
LC3	5.4E1	21	METHYL CHRYSENES
LC3	6.6E1	21	CHRYSENE
LC3	7.5E1	21	PICENE
LC3	9.1E1	21	BENZO(E)PYRENE
LC3	1.1E2	21	DIBENZO(A,H)PYRENE
LC3	2.0E2	22	BENZO(J)FLUORANTHENE
LC3	2.8E2	15	TERPHENYLS
LC3	3.0E2	21	DIBENZ(A,C)ANTHRACENE
LC3	4.0E2	22	1,2:5,6-DIBENZOFLUORENE
LC3	4.8E2	21	BENZO(G)CHRYSENE
LC3	8.2E2	21	BENZO(C)PHENANTHRENE
LC3	9.1E2	21	METHYLPHENANTHRENES
LC3	1.0E3	16A	POLYCHLORINATED BENZENES
LC3	1.7E3	21	ANTHRACENE
LC3	2.1E3	23A	COLLIDINES
LC3	2.8E3	22	FLUORANTHENE
LC3	6.8E3	15	INDAN
LC3	6.9E3	21	PYRENE
LC4	N	4	BROMOPHENYL PHENYL ETHER
LC4	N	7B	CHLOROHYDROXY BENZOPHENONE
LC4	N	25	DIBENZOTHIOPHENE
LC4	N	7B	DIHYDRO(D)CARVONE
LC4	N	9	NAPHTHONITRILES
LC4	N	4	2-CHLORO-1,2-EPOXYPROPANE
LC4	N	25	2,2-BITHIOPHENE
LC4	N	7B	5,6-BENZO-9-ANTHRONE
LC4	3.0E1	25	BENZONAPHTHOTHIOPHENE
LC4	4.0E1	17	4-NITROBIPHENYL
LC4	1.5E2	17	NITROBENZENE
LC4	3.6E2	7B	CAMPHOR
LC4	4.0E2	17	1-CHLORO-2-NITROBENZENE
LC4	5.8E2	17	1-CHLORO-4-NITROBENZENE
LC4	7.0E2	25	BENZO(B)THIOPHENE

LIST A-5 - SOLID - HEALTH

MATE UNITS: MICROGRAMS/GRAM

SAMPLE FRACTION	MATE VALUE	CATEGORY	SUBSTANCE
LC4	7.5E2	7B	ISOPHORONE
LC4	1.2E3	7B	ACETOPHENONE
LC5	N	24	BENZO(B)NAPHTHO(2,3-D)FURAN
LC5	N	24	DIBENZOFURAN
LC5	N	24	METHYLDIBENZOFURANS
LC5	N	24	NAPHTHOFURANS
LC5	N	12	N-NITROSO-DIPENTYLAMINE
LC5	N	24	PHENANTHRO(9,10-B)FURAN
LC5	N	24	1,9-BENZOXANTHENE
LC5	3.8E1	12	N-METHYL-N-NITROSO-ANILINE
LC5	4.5E1	17	DINITROTOLUENES
LC5	7.2E1	12	N-NITROSO-DIPROPYLAMINE
LC5	1.4E2	17	METHOXYNITROBENZENES
LC5	9.0E2	17	NITROTOLUENES
LC5	2.2E3	12	N-NITROSO-DIPHENYLAMINE
LC5	1.8E4	24	TETRAHYDROFURAN
LC6	N	23B	BENZO(C)QUINOLINE
LC6	N	23B	BENZO(F)QUINOLINE
LC6	N	23B	BENZO(H)QUINOLINE
LC6	N	23B	BENZ(A)ACRIDINE
LC6	N	23B	DIHYDROACRIDINE
LC6	N	23B	DIMETHYLQUINOLINES, DIMETHYLISOQUINOLINES
LC6	N	8D	DI-2-EHTYLHEXYL PHTHALATE
LC6	N	23B	INDENO(1,2,3-IJ)ISOQUINOLINE
LC6	N	5C	ISOBORNEOL
LC6	N	8D	LONG CHAIN ESTERS
LC6	N	8D	PHENYL BENZOATE
LC6	N	13A	1-ANTHRACENETHIOL
LC6	.01	18C	ACENAPHTHOLS
LC6	.01	18A	ALKYL CRESOLS
LC6	.01	18B	CATECHOL (1,2-DIHYDROXYBENZENE)
LC6	.01	19	CHLORINATED CRESOLS
LC6	.01	18A	CRESOLS (METHYL PHENOLS)
LC6	.01	18A	ETHYLPHENOLS
LC6	.01	18C	INDANOLS
LC6	.01	18C	PHENANTHROLS
LC6	.01	18A	PHENYLPHENOLS
LC6	.01	18A	POLYALKYL PHENOLS
LC6	.01	18A	XYLENOLS (DIMETHYL PHENOLS)
LC6	.01	18C	1-NAPHTHOL

LIST A-5 - SOLID - HEALTH

MATE UNITS: MICROGRAMS/GRAM

SAMPLE FRACTION	MATE VALUE	CATEGORY	SUBSTANCE
LC6	.01	18B	1,2,3-TRIHYDROXYBENZENES
LC6	.01	18B	1,4-DIHYDROXYBENZENE
LC6	.01	18C	2-HYDROXYDIBENZOFURAN
LC6	.01	18C	2-HYDROXYFLUORENE
LC6	.01	18A	2-METHOXYPHENOL
LC6	.01	18C	2-NAPHTHOL
LC6	.01	18A	2,2'-DIHYDROXYDIPHENYLS
LC6	3.0	23C	DIBENZO(C,G)CARBAZOLE
LC6	5.0	10C	2-AMINONAPHTHALENE
LC6	6.7	23B	DIBENZ(A,H)ACRIDINE
LC6	7.4	23B	DIBENZ(A,J)ACRIDINE
LC6	1.5E1	10C	ANISIDINES
LC6	2.4E1	13A	PERCHLOROMETHANETHIOL
LC6	3.6E1	10A	METHYLAMINE
LC6	6.2E1	13A	BENZENETHIOL
LC6	8.1E1	23C	PYRROLE
LC6	1.3E2	23D	BENZOTHIAZOLE
LC6	1.4E2	23D	METHYL BENZOTHIAZOLES
LC6	1.4E2	10C	1,4-DIAMINOBENZENE
LC6	1.5E2	8D	PHTHALATE ESTERS
LC6	1.8E2	23C	DIBENZO(A,G)CARBAZOLE
LC6	3.2E2	23B	BENZ(C)ACRIDINE
LC6	3.3E2	23C	INDOLE
LC6	3.6E2	23C	DIBENZO(A,I)CARBAZOLE
LC6	4.7E2	23B	QUINOLINE; ISOQUINOLINE
LC6	5.4E2	5B	1-PHENYLETHANOL
LC6	5.6E2	23C	BENZO(A)CARBAZOLE
LC6	6.8E2	23C	CARBAZOLE
LC6	6.9E2	23B	DIBENZ(C,H)ACRIDINE
LC6	7.5E2	10D	N,N-DIMETHYLANILINE
LC6	1.4E3	23C	METHYLINDOLES
LC6	1.7E3	23B	2-METHYLQUINOLINE
LC6	2.1E3	10B	MORPHOLINE
LC6	2.7E3	23B	ACRIDINE
LC6	2.8E3	5B	BORNEOL
LC6	5.8E3	5C	A-TERPINEOL
LC7	N	8A	LONG CHAIN ACIDS
LC7	.01	20	DINITROPHENOLS
LC7	.01	20	DINITRO-P-CRESOL
LC7	.01	19	PENTHACHLOROPHENOL
LC7	.01	20	2-AMINO-4,6-DINITROPHENOL
LC7	.01	20	2-NITROPHENOL

LIST A-5 - SOLID - HEALTH

MATE UNITS: MICROGRAMS/GRAM

SAMPLE FRACTION	MATE VALUE	CATEGORY	SUBSTANCE
LC7	.01	20	2,4,6-TRINITROPHENOL
LC7	.01	20	4,6-DINITRO-O-CRESOL
LC7	6.6	10C	4,4'-METHYLENE-BIS-(2-CHLOROANILINE)
LC7	1.7E1	10C	1-AMINONAPHTHALENE
LC7	1.8E2	8A	PHTHALIC ACID
LC7	2.0E2	10C	3,3'-DICHLOROBENZIDINE
LC7	4.0E2	11	1,2-DIPHENYLHYDRAZINE
LC7	4.2E2	10C	BENZIDINE (4,4'-DIAMINOBIPHENYL)
LC7	7.6E2	8A	ACETIC ACID
LC7	9.0E2	8C	FORMAMIDE
LC7	2.6E3	8B	HYDROXYACETIC ACID
LC7	4.2E3	8A	BENZOIC ACID
LC7	1.4E4	8C	ACETAMIDE
LC8	N	8B	6-AMINOHEXANOIC ACID
LC8	N	14A	9,10-ANTHRAQUINONEDISULFONIC ACID
LC8	1.8E2	8A	PHTHALIC ACID
LC8	7.6E2	8A	ACETIC ACID
LC8	1.2E3	14A	BENZENESULFONIC ACID
LC12	.01	20	3-NITROPHENOL
LC12	.01	20	4-NITROPHENOL

LIST A-5 - SOLID - HEALTH

MATE UNITS: MICROGRAMS/GRAM

SAMPLE FRACTION	MATE VALUE	CATEGORY	SUBSTANCE
NYD *	N	26A	ALKYL STIBINES
NYD	N	26C	COMPLEXED IRON
NYD	N	26C	COMPLEXED NICKEL
NYD	N	26C	COMPLEXED TIN
NYD	N	26C	COMPLEXED ZINC
NYD	N	26B	DIBENZE CHROMIUM
NYD	N	2A	DIBROMOCHLOROMETHANE
NYD	N	21	PERYLENE
NYD	N	9	1,3-DICYANO-L-HYDROXYBUTANE
NYD	N	23B	2,3-BENZ-4-AZAFLUORENE
NYD	3.0	26A	ORGANOTIN
NYD	3.2	8B	B-PROPIOLACTONE
NYD	4.5	26A	TETRAMETHYLLEAD
NYD	1.1E1	11	MONOMETHYLHYDRAZINE
NYD	3.0E1	11	N,N-DIMETHYLHYDRAZINE
NYD	6.0E1	11	-DIMETHYLAMINOAZOBENZENE
NYD	9.0E1	26C	COMPLEXED COPPER
NYD	9.0E1	9	TETRAMETHYLSUCCINONITRILE
NYD	1.0E2	26B	NICKELOCENE
NYD	6.8E2	9	BUTYRONITRILE
NYD	9.4E2	26A	ORGANOGERMANES
NYD	9.8E2	9	BENZONITRILE
NYD	1.0E3	26B	FERROCENE
NYD	9.0E3	5C	TERTIARY BUTANOL
SGC	N	13B	DIETHYL SULFIDE
SGC	3.0E1	13A	ETHANETHIOL
SGC	3.0E1	13A	METHANETHIOL
SGC	4.5E1	13A	N-BUTANETHIOL
SGC	7.2E2	13B	DIMETHYL SULFIDE
SGC	2.4E3	13A	PROPANETHIOLS

* NOT YET DETERMINED

LIST A-6 - SOLID - ECOLOGY

MATE UNITS: MICROGRAMS/GRAM

SAMPLE FRACTION	MATE VALUE	CATEGORY	SUBSTANCE
C1	2.0E1	1B	ETHYLENE
C1	2.0E2	1A	METHANE
C2	N *	1C	ACETYLENE
C2	N	1A	ETHANE
C2	2.0E2	1B	PROPYLENE
C3	N	1B	BUTYLENES
C3	N	1C	BUTYNE
C3	N	11	DIAZOMETHANE
C3	N	10B	ETHYLENEIMINE
C3	N	1C	PROPYNE
C3	2.0	1B	BUTADIENES
C3	2.0	10B	DIETHYLAMINE
C3	2.0	10B	DIMETHYLAMINE
C3	2.0	7A	FORMALDEHYDE
C3	2.0E2	2A	DICHLORODIFLUOROMETHANE
C3	2.0E2	2A	METHYL CHLORIDE
C3	2.0E2	1A	PROPANE
C3	2.0E2	2B	VINYL CHLORIDE (CHLOROETHENE)

* NOT YET ASSIGNED

LIST A-6 - SOLID - ECOLOGY

MATE UNITS: MICROGRAMS/GRAM

SAMPLE FRACTION	MATE VALUE	CATEGORY	SUBSTANCE
C4	N	7A	ACETALDEHYDE
C4	N	10B	ETHYLMETHYLAMINE
C4	N	2A	TRICHLOROFLUOROMETHANE
C4	2.0	10A	ETHYLAMINE
C4	2.0E2	1A	BUTANES
C4	2.0E2	2A	METHYL BROMIDE
C5	N	1B	CYCLOHEXADIENE
C5	N	1B	CYCLOPENTADIENES
C5	N	24	FURAN
C5	N	2A	METHYL IODIDE
C5	N	1B	PENTENES
C5	N	25	THIOPHENE
C5	N	26A	TRIMETHYLARSINE
C5	N	2A	1,2-DICHLORO-1,2-DIFLUOROETHANE
C5	N	10A	3-AMINOPROPANE
C5	.20	7A	ACROLEIN
C5	2.0	2A	CARBON TETRACHLORIDE
C5	2.0	1A	PENTANES
C5	2.0	2A	TRICHLOROETHANE
C5	9.0	4	CHLOROMETHYL METHYL ETHER
C5	2.0E1	7A	PROPIONALDEHYDE
C5	2.0E1	2B	1,1-DICHLOROETHENE
C5	2.0E1	2A	1,2-DICHLOROETHANE
C5	2.0E1	2B	1,2-DICHLOROETHENE
C5	2.0E2	7B	ACETONE
C5	2.0E2	1A	CYCLOPENTANE
C6	N	2A	BROMOCHLOROMETHANE
C6	N	2A	BROMODICHLOROMETHANE
C6	N	2A	CHLOROFORM (TRICHLOROMETHANE)
C6	N	1B	CYCLOHEXENE
C6	N	1B	HEXENES
C6	N	11	N,N'-DIMETHYLHYDRAZINE
C6	N	23A	PICOLINES
C6	N	9	1-CYANOETHANE
C6	N	4	2-CHLOROETHYL METHYL ETHER
C6	N	5B	2,6-DIMETHYL-4-HEPTANOL
C6	N	10C	4-AMINOBIPHENYL
C6	4.E-5	26A	ALKYL MERCURY
C6	.20	7A	BUTYRALDEHYDE
C6	2.0	15	BENZENE

LIST A-6 - SOLID - ECOLOGY

MATE UNITS: MICROGRAMS/GRAM

SAMPLE FRACTION	MATE VALUE	CATEGORY	SUBSTANCE
C6	2.0	1A	CYCLOHEXANE
C6	2.0	2A	DICHLOROPROPANES
C6	2.0	2B	DICHLOROPROPENES
C6	2.0	7A	3-METHYLBUTANAL
C6	2.0E1	5A	1-PROPANOL
C6	2.0E1	5B	2-PROPANOL (ISOPROPYL ALCOHOL)
C6	2.0E2	9	ACETONITRILE
C6	2.0E2	7B	BUTANONE
C6	2.0E2	10A	BUTYLAMINES
C6	2.0E2	5A	ETHANOL
C6	2.0E2	1B	HEPTENES
C6	2.0E2	1A	HEXANES
C6	2.0E2	5A	METHANOL
C6	2.0E2	5C	TERTIARY PENTANOL
C6	2.0E2	5B	2-BUTANOL
C7	N	2A	BROMOBUTANES
C7	N	4	CHLOROETHYL ETHYL ETHER
C7	N	4	CHLOROMETHYL ETHYL ETHER
C7	N	8B	HYDROXYBENZOIC ACID
C7	N	4	1-CHLORO-1,2-OXETANE
C7	N	4	1,1'-DICHLORODIETHYL ETHER
C7	N	4	1,1'-DICHLOROMETHYL ETHER
C7	N	3	1,3-DIOXANE
C7	N	3	2-METHOXY BIPHENYL
C7	N	8C	6-HEXANELACTAM (E-CAPROLACTAM)
C7	2.0E1	5A	ISOBUTYLALCOHOL
C7	2.0E1	3	ISOPROPYL ETHER
C7	2.0E1	8D	METHYL METHACRYLATE
C7	2.0E1	3	1,4-DIOXANE
C7	2.0E2	1A	HEPTANES
C8	N	8D	ADIPATES
C8	N	8A	BENZOIC ACID
C8	N	23A	COLLIDINES
C8	N	2A	DIBROMODICHLOROMETHANE
C8	N	8A	FORMIC ACID
C8	N	8A	LONG CHAIN ACIDS
C8	N	8A	MALEIC ACID
C8	N	13B	METHYL DISULFIDE
C8	N	25	METHYLTHIOPHENES
C8	N	1A	OCTANES

LIST A-6 - SOLID - ECOLOGY

MATE UNITS: MICROGRAMS/GRAM

SAMPLE FRACTION	MATE VALUE	CATEGORY	SUBSTANCE
C8	N	5B	PENTANOLS (SECONDARY)
C8	N	23A	PHENYL PYRIDINES
C8	N	3	2-ETHYL-4-METHYL-1, 3-DIOXOLANES
C8	.20	16A	CHLOROBENZENE
C8	2.0	15	ETHYL BENZENE
C8	2.0	2B	TETRACHLOROETHENE
C8	2.0	15	TOLUENE
C8	2.0	6B	1-CHLORO-2,3-EPOXYPROPANE (A-EPICHLOROHYDRIN)
C8	2.0	10A	1,2-DIAMINOETHANE
C8	2.0E1	10A	CYCLOHEXYLAMINE
C8	2.0E1	2A	METHYLENE CHLORIDE (DICHLOROMETHANE)
C8	2.0E1	5A	PENTANOLS (PRIMARY)
C8	2.0E1	23A	PYRIDINE
C8	2.0E2	5A	N-BUTANOL
C9	N	8D	ADIPATES
C9	N	16A	BROMO AND DIBROMOBENZENES
C9	N	23A	CHLOROPYRIDINE
C9	N	25	DIMETHYLTHIOPHENES
C9	N	13B	DIPHENYL SULFIDE
C9	N	1A	NONANES
C9	N	12	N-NITROSO-DIMETHYLAMINE
C9	N	10A	PROPANOLAMINE
C9	N	4	1,2-DICHLORODIISOPROPYL ETHER
C9	N	4	1,2-DICHLOROETHYL ETHYL ETHER
C9	N	16A	2-CHLOROTOLUENE
C9	2.0	15	ISOPROPYL BENZENE
C9	2.0	15	PROPYL BENZENE
C9	2.0	15	STYRENE
C9	2.0	15	XYLENES
C10	N	8D	ADIPATES
C10	N	1A	ALKANES (C>9)
C10	N	4	A-CHLOROBUTYL ETHYL ETHER
C10	N	7A	BENZALDEHYDE
C10	N	24	BENZOFURAN
C10	N	2A	BROMOFORM (TRIBROMOMETHANE)
C10	N	23A	CHLOROPYRIDINE
C10	N	23A	DI AND POLYSUBSTITUTED PYRIDINES
C10	N	8D	METHYL BENZOATE
C10	N	12	N-NITROSO-DIETHYLAMINE
C10	N	25	TRI AND TETRAMETHYL THIOPHENES
C10	N	15	TRIMETHYLBENZENES

LIST A-6 - SOLID - ECOLOGY

MATE UNITS: MICROGRAMS/GRAM

SAMPLE FRACTION	MATE VALUE	CATEGORY	SUBSTANCE
C10	N	16A	1,3-DICHLOROBENZENE
C10	N	6B	2,3-EPOXY-1-PROPANOL
C10	.20	22	DICYCLOPENTADIENE
C10	.20	16A	1,2-DICHLOROBENZENE
C10	.20	16A	1,4-DICHLOROBENZENE
C10	1.0	18B	1,3-DIHYDROXYBENZENE
C10	1.0	19	2-CHLOROPHENOL
C10	2.0	15	DIALKYL BENZENES
C10	2.0E1	10A	ETHANOLAMINE
C10	2.0E1	4	2,2'-DICHLORODIETHYL ETHER
C10	2.0E1	8B	3-HYDROXYPROPANOIC ACID LACTONE
C11	N	1A	ALKANES (C>9)
C11	N	10C	AMINOTOLUENES (METHYL ANILINES)
C11	N	4	BIS-(1-CHLOROISOPROPYL) ETHER
C11	N	15	BUTYLBENZENE
C11	N	14B	DIMETHYL SULFOXIDE
C11	N	10C	DIMETHYLANILINE (XYLIDINES)
C11	N	2A	HEXACHLOROETHANE
C11	N	7B	TETRACHLOROACETONE
C11	N	2A	1-CHLOROOCTANE
C11	.20	2A	HEXACHLOROCYCLOHEXANE (LINDANE)
C11	.20	21	NAPHTHALENE
C11	.20	16B	-CHLOROTOLUENE
C11	1.0	18A	PHENOL
C11	1.0	20	3-NITROPHENOL
C11	2.0	9	ACRYLONITRILE
C11	2.0	10C	ANILINE
C11	2.0	15	DIALKYL BENZENES
C11	2.0E1	6A	ETHYLENE GLYCOL (1,2-ETHANEDIOL)
C11	2.0E1	15	TETRAMETHYLBENZENES
C11	2.0E2	6A	PROPYLENE GLYCOL (1,2-PROPANEDIOL)

LIST A-6 - SOLID - ECOLOGY

MATE UNITS: MICROGRAMS/GRAM

SAMPLE FRACTION	MATE VALUE	CATEGORY	SUBSTANCE
C12	N	1A	ALKANES (C>9)
C12	N	16A	BROMO AND DIBROMOBENZENES
C12	N	16A	BROMOCHLOROBENZENES
C12	N	12	N-NITROSO-DIPROPYLAMINE
C12	.20	26A	TETRAETHYLLEAD
C12	1.0	18A	ALKYL CRESOLS
C12	1.0	18A	CRESOLS (METHYL PHENOLS)
C12	1.0	20	2-NITROPHENOL
C12	1.0	19	2,4-DICHLOROPHENOL
C12	2.0	15	DIALKYL BENZENES
C12	2.0	17	NITROBENZENE
C12	2.0	15	TETRAHYDRONAPHTHALENE
C12	2.0E1	5A	A-HYDROXYTOLUENE (BENZYL ALCOHOL)
GC11	N	12	N-NITROSO-DIISOPROPYLAMINE
LC1	N	1A	ALKANES (C>9)
LC1	.20	26A	TETRAETHYLLEAD

LIST A-6 - SOLID - ECOLOGY

MATE UNITS: MICROGRAMS/GRAM

SAMPLE FRACTION	MATE VALUE	CATEGORY	SUBSTANCE
LC2	N	16A	POLYCHLORINATED BIPHENYLS
LC2	N	15	BIPHENYL
LC2	N	16B	BIS-(CHLOROMETHYL)BENZENE
LC2	N	16A	BROMO AND DIBROMOBENZENES
LC2	N	16A	BROMOCHLOROBENZENES
LC2	N	22	CYCLOPENTANONAPHTHALENE
LC2	N	15	DIHYDRONAPHTHALENE
LC2	N	21	DIMETHYL NAPHTHALENES
LC2	N	22	FLUORENE
LC2	N	2B	HEXACHLOROBUTADIENE
LC2	N	2B	HEXACHLOROCYCLOPENTADIENE
LC2	N	15	INDAN
LC2	N	15	INDENE
LC2	N	21	MONOALKYL NAPHTHALENES
LC2	N	15	4,4'-DIPHENYLBIPHENYL
LC2	1.E-5	16A	CHLORONAPHTHALENES
LC2	.20	21	NAPHTHALENE
LC2	.20	16A	POLYCHLORINATED BENZENES
LC2	2.0	15	TETRAHYDRONAPHTHALENE
LC3	N	16A	POLYCHLORINATED BIPHENYLS
LC3	N	21	ACENAPHTHENE
LC3	N	21	ACENAPHTHYLENE
LC3	N	21	ANTHRACENE
LC3	N	21	BENZO(A)PYRENE
LC3	N	22	BENZO(B)FLUORANTHENE
LC3	N	21	BENZO(C)PHENANTHRENE
LC3	N	22	BENZO(E)FLUORANTHENE
LC3	N	21	BENZO(E)PYRENE
LC3	N	21	BENZO(G)CHRYSENE
LC3	N	21	BENZO(G,H,I)PERYLENE
LC3	N	22	BENZO(J)FLUORANTHENE
LC3	N	22	BENZO(K)FLUORANTHENE
LC3	N	21	BENZ(A)ANTHRACENE
LC3	N	21	CHRYSENE
LC3	N	23A	COLLIDINES
LC3	N	21	CORONENE
LC3	N	22	CYCLOPENTA(DEF)PHENANTHRENE
LC3	N	21	DIBENZO(A,)PYRENE
LC3	N	21	DIBENZO(A,H)PYRENE
LC3	N	21	DIBENZO(A,I)PYRENE
LC3	N	21	DIBENZ(A,C)ANTHRACENE
LC3	N	21	DIBENZ(A,H)ANTHRACENE

LIST A-6 - SOLID - ECOLOGY

MATE UNITS: MICROGRAMS/GRAM

SAMPLE FRACTION	MATE VALUE	CATEGORY	SUBSTANCE
LC3	N	21	DIMETHYL PYRENES
LC3	N	22	FLUORANTHENE
LC3	N	15	INDAN
LC3	N	15	INDENE
LC3	N	22	INDENO(1,2,3,CD)PYRENE
LC3	N	21	METHYL CHRYSENES
LC3	N	21	METHYLPHENANTHRENES
LC3	N	23A	MONOSUBSTITUTED ALKYL PYRIDINES
LC3	N	21	NAPHTHACENE
LC3	N	21	PHENANTHRENE
LC3	N	21	PHENYL NAPHTHALENES
LC3	N	21	PICENE
LC3	N	21	PYRENE
LC3	N	15	TERPHENYLS
LC3	N	22	TRIBENZYLENEBENZENE (TRUXENE)
LC3	N	21	TRIPHENYLENE
LC3	N	21	1-METHYLPYRENE
LC3	N	22	1,2-BENZOFLUORENE
LC3	N	21	1,2-BENZONAPHTHACENE
LC3	N	22	1,2:5,6-DIBENZOFLUORENE
LC3	N	22	2,3-BENZOFLUORENE
LC3	N	21	2,7-DIMETHYLANTHRACENE
LC3	N	22	3-METHYL-CHOLANTHRENE
LC3	N	15	4,4'-DIPHENYLBIPHENYL
LC3	N	21	7,12-DIMETHYLBENZ(A)ANTHRACENE
LC3	1.E-5	16A	CHLORONAPHTHALENES
LC3	.20	16A	POLYCHLORINATED BENZENES
LC4	N	7B	ACETOPHENONE
LC4	N	25	BENZONAPHTHOTHIOPHENE
LC4	N	25	BENZO(B)THIOPHENE
LC4	N	4	BROMOPHENYL PHENYL ETHER
LC4	N	7B	CAMPHOR
LC4	N	7B	CHLOROHYDROXY BENZOPHENONE
LC4	N	25	DIBENZOTHIOPHENE
LC4	N	7B	DIHYDRO(D)CARVONE
LC4	N	7B	ISOPHORONE
LC4	N	9	NAPHTHONITRILES
LC4	N	17	1-CHLORO-4-NITROBENZENE
LC4	N	4	2-CHLORO-1,2-EPOXYPROPANE
LC4	N	25	2,2-BITHIOPHENE
LC4	N	17	4-NITROBIPHENYL
LC4	N	7B	5,6-BENZO-9-ANTHRONE

LIST A-6 - SOLID - ECOLOGY

MATE UNITS: MICROGRAMS/GRAM

SAMPLE FRACTION	MATE VALUE	CATEGORY	SUBSTANCE
LC4	2.0	17	NITROBENZENE
LC4	2.0E1	17	1-CHLORO-2-NITROBENZENE
LC5	N	24	BENZO(B)NAPHTHO(2,3-D)FURAN
LC5	N	24	DIBENZOFURAN
LC5	N	17	METHOXYNITROBENZENES
LC5	N	24	METHYLDIBENZOFURANS
LC5	N	24	NAPHTHOFURANS
LC5	N	12	N-METHYL-N-NITROSO-ANILINE
LC5	N	12	N-NITROSO-DIPENTYLAMINE
LC5	N	12	N-NITROSO-DIPHENYLAMINE
LC5	N	12	N-NITROSO-DIPROPYLAMINE
LC5	N	24	PHENANTHRO(9,10-B)FURAN
LC5	N	24	TETRAHYDROFURAN
LC5	N	24	1,9-BENZOXANTHENE
LC5	2.0	17	DINITROTOLUENES
LC5	2.0	17	NITROTOLUENES
LC6	N	23B	ACRIDINE
LC6	N	10C	ANISIDINES
LC6	N	5C	A-TERPINEOL
LC6	N	13A	BENZENETHIOL
LC6	N	23D	BENZOTHIAZOLE
LC6	N	23C	BENZO(A)CARBAZOLE
LC6	N	23B	BENZO(C)QUINOLINE
LC6	N	23B	BENZO(F)QUINOLINE
LC6	N	23B	BENZO(H)QUINOLINE
LC6	N	23B	BENZ(A)ACRIDINE
LC6	N	23B	BENZ(C)ACRIDINE
LC6	N	5B	BORNEOL
LC6	N	23C	CARBAZOLE
LC6	N	23C	DIBENZO(A,G)CARBAZOLE
LC6	N	23C	DIBENZO(A,I)CARBAZOLE
LC6	N	23C	DIBENZO(C,D)CARBAZOLE
LC6	N	23B	DIBENZ(A,H)ACRIDINE
LC6	N	23B	DIBENZ(A,J)ACRIDINE
LC6	N	23B	DIBENZ(C,H)ACRIDINE
LC6	N	23B	DIHYDROACRIDINE
LC6	N	23B	DIMETHYLQUINOLINES, DIMETHYLISOQUINOLINES
LC6	N	8D	DI-2-EHTYLHEXYL PHTHALATE
LC6	N	23B	INDENO(1,2,3-IJ)ISOQUINOLINE
LC6	N	23C	INDOLE

LIST A-6 - SOLID - ECOLOGY

MATE UNITS: MICROGRAMS/GRAM

SAMPLE FRACTION	MATE VALUE	CATEGORY	SUBSTANCE
LC6	N	5C	ISOBORNEOL
LC6	N	8D	LONG CHAIN ESTERS
LC6	N	23D	METHYL BENZOTHIAZOLES
LC6	N	23C	METHYLINDOLES
LC6	N	10D	N,N-DIMETHYLANILINE
LC6	N	13A	PERCHLOROMETHANETHIOL
LC6	N	8D	PHENYL BENZOATE
LC6	N	23C	PYRROLE
LC6	N	23B	QUINOLINE, ISOQUINOLINE
LC6	N	13A	1-ANTHRACENETHIOL
LC6	N	5B	1-PHENYLETHANOL
LC6	N	10C	1,4-DIAMINOBENZENE
LC6	N	23B	2-METHYLQUINOLINE
LC6	.003	8D	PHTHALATE ESTERS
LC6	.20	10C	2-AMINONAPHTHALENE
LC6	1.0	18C	ACENAPHTHOLS
LC6	1.0	18A	ALKYL CRESOLS
LC6	1.0	18B	CATECHOL (1,2-DIHYDROXYBENZENE)
LC6	1.0	19	CHLORINATED CRESOLS
LC6	1.0	18A	CRESOLS (METHYL PHENOLS)
LC6	1.0	18A	ETHYLPHENOLS
LC6	1.0	18C	INDANOLS
LC6	1.0	18C	PHENANTHROLS
LC6	1.0	18A	PHENYLPHENOLS
LC6	1.0	18A	POLYALKYL PHENOLS
LC6	1.0	18A	XYLENOLS (DIMETHYL PHENOLS)
LC6	1.0	18C	1-NAPHTHOL
LC6	1.0	18B	1,2,3-TRIHYDROXYBENZENES
LC6	1.0	18B	1,4-DIHYDROXYBENZENE
LC6	1.0	18C	2-HYDROXYDIBENZOFURAN
LC6	1.0	18C	2-HYDROXYFLUORENE
LC6	1.0	18A	2-METHOXYPHENOL
LC6	1.0	18C	2-NAPHTHOL
LC6	1.0	18A	2,2'-DIHYDROXYDIPHENYLS
LC6	2.0	10A	METHYLAMINE
LC6	2.0E1	10B	MORPHOLINE
LC7	N	8C	ACETAMIDE
LC7	N	8A	BENZOIC ACID
LC7	N	8C	FORMAMIDE
LC7	N	8B	HYDROXYACETIC ACID
LC7	N	8A	LONG CHAIN ACIDS
LC7	N	8A	PHTHALIC ACID

LIST A-6 - SOLID - ECOLOGY

MATE UNITS: MICROGRAMS/GRAM

SAMPLE FRACTION	MATE VALUE	CATEGORY	SUBSTANCE
LC7	N	11	1,2-DIPHENYLHYDRAZINE
LC7	N	10C	3,3'-DICHLOROBENZIDINE
LC7	N	10C	4,4'-METHYLENE-BIS-(2-CHLOROANILINE)
LC7	.20	10C	BENZIDINE (4,4'-DIAMINOBIPHENYL)
LC7	.20	10C	1-AMINONAPHTHALENE
LC7	1.0	20	DINITROPHENOLS
LC7	1.0	20	DINITRO-P-CRESOL
LC7	1.0	19	PENTHACHLOROPHENOL
LC7	1.0	20	2-AMINO-4,6-DINITROPHENOL
LC7	1.0	20	2-NITROPHENOL
LC7	1.0	20	2,4,6-TRINITROPHENOL
LC7	1.0	20	4,6-DINITRO-O-CRESOL
LC7	2.0	8A	ACETIC ACID
LC8	N	14A	BENZENESULFONIC ACID
LC8	N	8A	PHTHALIC ACID
LC8	N	8B	6-AMINOHEXANOIC ACID
LC8	N	14A	9,10-ANTHRAQUINONEDISULFONIC ACID
LC8	2.0	8A	ACETIC ACID
LC12	1.0	20	3-NITROPHENOL
LC12	1.0	20	4-NITROPHENOL
NYD *	N	26A	ALKYL STIBINES
NYD	N	9	BENZONITRILE
NYD	N	9	BUTYRONITRILE
NYD	N	8B	B-PROPIOLACTONE
NYD	N	26C	COMPLEXED COPPER
NYD	N	26C	COMPLEXED IRON
NYD	N	26C	COMPLEXED NICKEL
NYD	N	26C	COMPLEXED TIN
NYD	N	26C	COMPLEXED ZINC
NYD	N	26B	DIBENZE CHROMIUM
NYD	N	2A	DIBROMOCHLOROMETHANE
NYD	N	26B	FERROCENE
NYD	N	11	MONOMETHYLHYDRAZINE
NYD	N	26B	NICKELOCENE
NYD	N	11	N,N-DIMETHYLHYDRAZINE
NYD	N	26A	ORGANOGERMANES
NYD	N	26A	ORGANOTIN
NYD	N	21	PERYLENE

* NOT YET DETERMINED

LIST A-6 - SOLID - ECOLOGY

MATE UNITS: MICROGRAMS/GRAM

SAMPLE FRACTION	MATE VALUE	CATEGORY	SUBSTANCE
NYD	N	26A	TETRAMETHYLLEAD
NYD	N	9	TETRAMETHYLSUCCINONITRILE
NYD	N	11	-DIMETHYLAMINOAZOBENZENE
NYD	N	9	1,3-DICYANO-L-HYDROXYBUTANE
NYD	N	23B	2,3-BENZ-4-AZAFLUORENE
NYD	2.0E2	5C	TERTIARY BUTANOL
SGC	N	13B	DIETHYL SULFIDE
SGC	N	13B	DIMETHYL SULFIDE
SGC	N	13A	ETHANETHIOL
SGC	N	13A	METHANETHIOL
SGC	N	13A	N-BUTANETHIOL
SGC	N	13A	PROPANETHIOLS

LIST A-7 - CHEMICAL CATEGORY

N = NOT YET ASSIGNED NYD = NOT YET DETERMINED

		GASEOUS		LIQUID		SOLID WASTE		SAMPLE
		HEALTH	ECOLOGY	HEALTH	ECOLOGY	HEALTH	ECOLOGY	FRACTION
		(MICROGM/CU M)		(MICROGM/L)		(MICROGM/GRAM)		
1A	METHANE	3.3E5	N	4.9E7	1.0E5	9.8E4	2.0E2	C1
1A	ETHANE	6.1E6	N	9.2E7	N	1.8E5	N	C2
1A	PROPANE	9.0E6	N	1.4E8	1.0E5	2.8E5	2.0E2	C3
1A	BUTANES	1.4E6	N	2.1E7	1.0E5	4.2E4	2.0E2	C4
1A	PENTANES	1.8E6	N	2.7E7	1.0E3	5.4E4	2.0	C5
1A	HEXANES	3.6E5	N	5.4E6	1.0E5	1.1E4	2.0E2	C6
1A	CYCLOPENTANE	N	N	N	1.0E5	N	2.0E2	C5
1A	CYCLOHEXANE	1.1E6	N	1.6E7	1.0E3	3.2E4	2.0	C6
1A	HEPTANES	1.6E6	N	2.4E7	1.0E5	4.8E4	2.0E2	C7
1A	OCTANES	1.5E6	N	2.2E7	N	4.4E4	N	C8
1A	NONANES	1.1E6	N	1.6E7	N	3.2E4	N	C9
1A	ALKANES (C>9)	N	N	N	N	N	N	C10
1A	ALKANES (C>9)	N	N	N	N	N	N	C11
1A	ALKANES (C>9)	N	N	N	N	N	N	C12
1A	ALKANES (C>9)	N	N	N	N	N	N	LC1
1B	ETHYLENE	5.7E6	1.0	8.6E7	1.0E4	1.7E5	2.0E1	C1
1B	PROPYLENE	8.6E6	N	1.3E8	1.0E5	2.6E5	2.0E2	C2
1B	BUTYLENES	N	N	N	N	N	N	C3
1B	BUTADIENES	2.2E6	N	3.3E7	1.0E3	6.6E4	2.0	C3
1B	PENTENES	N	N	N	N	N	N	C5
1B	CYCLOPENTADIENES	2.0E5	N	3.0E6	N	6.0E3	N	C5
1B	HEXENES	N	N	N	N	N	N	C6
1B	CYCLOHEXENE	1.0E6	N	1.5E7	N	3.0E4	N	C6
1B	CYCLOHEXADIENE	N	N	N	N	N	N	C5
1B	HEPTENES	N	N	N	1.0E5	N	2.0E2	C6
1C	ACETYLENE	5.3E6	1.1E5	8.0E7	N	1.6E5	N	C2
1C	PROPYNE	1.7E6	N	2.5E7	N	5.0E4	N	C3
1C	BUTYNE	N	N	N	N	N	N	C3
2A	METHYL BROMIDE	6.0E4	N	9.0E5	1.0E5	1.8E3	2.0E2	C4
2A	METHYL CHLORIDE	2.1E5	N	3.2E6	1.0E5	6.4E3	2.0E2	C3
2A	METHYL IODIDE	8.5E2	N	1.3E4	N	2.6E1	N	C5
2A	METHYLENE CHLORIDE (DICHLOROMETHANE)	2.6E5	N	3.9E6	1.0E4	7.8E3	2.0E1	C8
2A	BROMOCHLOROMETHANE	1.1E6	N	1.7E7	N	3.4E4	N	C6
2A	CHLOROFORM (TRICHLOROMETHANE)	1.2E5	N	6.0E5	N	1.2E3	N	C6
2A	BROMODICHLOROMETHANE	N	N	N	N	N	N	C6

LIST A-7 - CHEMICAL CATEGORY

N = NOT YET ASSIGNED NYD = NOT YET DETERMINED

		GASEOUS		LIQUID		SOLID WASTE		SAMPLE
		HEALTH (MICROGM/CU M)	ECOLOGY (MICROGM/CU M)	HEALTH (MICROGM/L)	ECOLOGY (MICROGM/L)	HEALTH (MICROGM/GRAM)	ECOLOGY (MICROGM/GRAM)	FRACTION
2A	DIBROMOCHLOROMETHANE	N	N	N	N	N	N	NYD
2A	BROMOFORM (TRIBROMOMETHANE)	5.0E3	N	7.5E4	N	1.5E2	N	C10
2A	DIBROMODICHLOROMETHANE	N	N	N	N	N	N	C8
2A	DICHLORODIFLUOROMETHANE	5.0E6	N	7.4E7	1.0E5	1.5E5	2.0E2	C3
2A	TRICHLOROFLUOROMETHANE	5.6E6	N	8.4E7	N	1.7E5	N	C4
2A	CARBON TETRACHLORIDE	6.0E4	N	9.0E5	1.0E3	1.8E3	2.0	C5
2A	1,2-DICHLOROETHANE	2.0E5	N	3.0E6	1.0E4	6.0E3	2.0E1	C5
2A	TRICHLOROETHANE	4.5E4	N	6.8E5	1.0E3	1.4E3	2.0	C5
2A	1,2-DICHLORO-1,2-DIFLUOROETHANE	5.0E6	N	7.4E7	N	1.5E5	N	C5
2A	HEXACHLOROETHANE	1.0E4	N	1.5E5	N	3.0E2	N	C11
2A	DICHLOROPROPANES	3.5E5	N	5.3E6	1.0E3	1.1E4	2.0	C6
2A	BROMOBUTANES	N	N	N	N	N	N	C7
2A	HEXACHLOROCYCLOHEXANE (LINDANE)	5.0E2	N	7.5E3	1.0E2	1.5E1	.20	C11
2A	1-CHLOROOCTANE	N	N	N	N	N	N	C11
2B	VINYL CHLORIDE (CHLOROETHENE)	2.6E3	N	3.8E4	1.0E5	7.6E1	2.0E2	C3
2B	1,2-DICHLOROETHENE	7.0E5	N	1.1E7	1.0E4	2.2E4	2.0E1	C5
2B	1,1-DICHLOROETHENE	2.6E5	N	3.9E6	1.0E4	7.8E3	2.0E1	C5
2B	TETRACHLOROETHENE	6.7E5	N	1.0E7	1.0E3	2.0E4	2.0	C8
2B	DICHLOROPROPENES	1.1E4	N	1.7E5	1.0E3	3.4E2	2.0	C6
2B	HEXACHLOROBUTADIENE	4.1E3	N	6.1E4	N	1.2E2	N	LC2
2B	HEXACHLOROCYCLOPENTADIENE	1.1E2	N	1.7E3	N	3.4	N	LC2
3	ISOPROPYL ETHER	1.1E6	N	1.6E7	1.0E4	3.2E4	2.0E1	C7
3	2-METHOXY BIPHENYL	N	N	N	N	N	N	C7
3	2-ETHYL-4-METHYL-1, 3-DIOXOLANES	2.3E4	N	3.4E5	N	6.8E2	N	C8
3	1,3-DIOXANE	1.8E5	N	2.7E6	N	5.4E3	N	C7
3	1,4-DIOXANE	1.8E5	N	2.7E6	1.0E4	5.4E3	2.0E1	C7
4	CHLOROMETHYL METHYL ETHER	3.7E4	N	5.5E5	4.5E3	1.1E3	9.0	C5
4	1,1'-DICHLOROMETHYL ETHER	N	N	N	N	N	N	C7
4	2-CHLORO-1,2-EPOXYPROPANE	N	N	N	N	N	N	LC4
4	2-CHLOROETHYL METHYL ETHER	N	N	N	N	N	N	C6
4	1-CHLORO-1,2-OXETANE	N	N	N	N	N	N	C7
4	CHLOROMETHYL ETHYL ETHER	N	N	N	N	N	N	C7
4	CHLOROETHYL ETHYL ETHER	N	N	N	N	N	N	C7
4	1,1'-DICHLORODIETHYL ETHER	3.0E4	N	4.5E5	N	9.0E2	N	C7
4	1,2-DICHLOROETHYL ETHYL ETHER	N	N	N	N	N	N	C9
4	2,2'-DICHLORODIETHYL ETHER	3.0E4	N	4.5E5	1.0E4	9.0E2	2.0E1	C10
4	A-CHLOROBUTYL ETHYL ETHER	N	N	N	N	N	N	C10

LIST A-7 - CHEMICAL CATEGORY

N = NOT YET ASSIGNED   NYD = NOT YET DETERMINED

		GASEOUS		LIQUID		SOLID WASTE		SAMPLE
		HEALTH	ECOLOGY	HEALTH	ECOLOGY	HEALTH	ECOLOGY	FRACTION
		(MICROGM/CU M)		(MICROGM/L)		(MICROGM/GRAM)		
4	BIS-(1-CHLOROISOPROPYL) ETHER	N	N	N	N	N	N	C11
4	1,2-DICHLORODIISOPROPYL ETHER	N	N	N	N	N	N	C9
4	BROMOPHENYL PHENYL ETHER	N	N	N	N	N	N	LC4
5A	METHANOL	2.6E5	N	3.9E6	1.0E5	7.8E3	2.0E2	C6
5A	ETHANOL	1.9E6	N	2.9E7	1.0E5	5.8E4	2.0E2	C6
5A	1-PROPANOL	5.0E5	N	7.5E6	1.0E4	1.5E4	2.0E1	C6
5A	N-BUTANOL	1.5E5	N	2.3E6	1.0E5	4.5E3	2.0E2	C8
5A	ISOBUTYLALCOHOL	1.5E5	N	2.3E6	1.0E4	4.5E3	2.0E1	C7
5A	PENTANOLS (PRIMARY)	3.6E5	N	5.4E6	1.0E4	1.1E4	2.0E1	C8
5A	A-HYDROXYTOLUENE (BENZYL ALCOHOL)	5.5E4	N	8.3E5	1.0E4	1.7E3	2.0E1	C12
5B	2-PROPANOL (ISOPROPYL ALCOHOL)	9.8E5	N	1.5E7	1.0E4	3.0E4	2.0E1	C6
5B	2-BUTANOL	4.5E5	N	6.8E6	1.0E5	1.4E4	2.0E2	C6
5B	PENTANOLS (SECONDARY)	3.6E5	N	5.4E6	N	1.1E4	N	C8
5B	2,6-DIMETHYL-4-HEPTANOL	1.6E5	N	2.4E6	N	4.8E3	N	C6
5B	1-PHENYLETHANOL	1.8E4	N	2.7E5	N	5.4E2	N	LC6
5B	BORNEOL	9.0E4	N	1.4E6	N	2.8E3	N	LC6
5C	TERTIARY BUTANOL	3.0E5	N	4.5E6	1.0E5	9.0E3	2.0E2	NYD
5C	TERTIARY PENTANOL	4.5E4	N	6.8E5	1.0E5	1.4E3	2.0E2	C6
5C	A-TERPINEOL	1.9E5	N	2.9E6	N	5.8E3	N	LC6
5C	ISOBORNEOL	N	N	N	N	N	N	LC6
6A	ETHYLENE GLYCOL (1,2-ETHANEDIOL)	1.0E4	N	1.5E5	1.0E4	3.0E2	2.0E1	C11
6A	PROPYLENE GLYCOL (1,2-PROPANEDIOL)	3.6E5	N	5.4E6	1.0E5	1.1E4	2.0E2	C11
6B	2,3-EPOXY-1-PROPANOL	1.5E5	N	2.3E6	N	5.2E3	N	C10
6B	1-CHLORO-2,3-EPOXYPROPANE (A-EPICHLOROHYDRIN)	1.6E4	N	2.4E5	1.0E3	4.8E2	2.0	C8
7A	FORMALDEHYDE	1.6E3	N	2.4E4	1.0E3	4.8E1	2.0	C3
7A	ACETALDEHYDE	1.8E5	N	2.7E6	N	5.4E3	N	C4
7A	ACROLEIN	2.5E2	9.4E1	3.8E3	1.0E2	7.5	.20	C5
7A	PROPIONALDEHYDE	3.6E4	N	5.4E5	1.0E4	1.1E3	2.0E1	C5
7A	BUTYRALDEHYDE	1.1E5	N	1.7E6	1.0E2	3.3E3	.20	C6
7A	3-METHYLBUTANAL	3.9E5	N	5.8E6	1.0E3	1.2E4	2.0	C6
7A	BENZALDEHYDE	5.9E4	N	8.8E5	N	1.8E3	N	C10

LIST A-7 - CHEMICAL CATEGORY

N = NOT YET ASSIGNED NYD = NOT YET DETERMINED

		GASEOUS (MICROGM/CU M)		LIQUID (MICROGM/L)		SOLID WASTE (MICROGM/GRAM)		SAMPLE FRACTION
		HEALTH	ECOLOGY	HEALTH	ECOLOGY	HEALTH	ECOLOGY	
7B	ACETONE	2.4E6	N	3.6E7	1.0E5	7.2E4	2.0E2	C5
7B	TETRACHLOROACETONE	N	N	N	N	N	N	C11
7B	BUTANONE	5.9E5	N	8.9E6	1.0E5	1.8E4	2.0E2	C6
7B	ISOPHORONE	2.5E4	N	3.8E5	N	7.5E2	N	LC4
7B	CAMPHOR	1.2E4	N	1.8E5	N	3.6E2	N	LC4
7B	ACETOPHENONE	4.1E4	N	6.1E5	N	1.2E3	N	LC4
7B	CHLOROHYDROXY BENZOPHENONE	N	N	N	N	N	N	LC4
7B	5,6-BENZO-9-ANTHRONE	N	N	N	N	N	N	LC4
7B	DIHYDRO(D)CARVONE	N	N	N	N	N	N	LC4
8A	FORMIC ACID	9.0E3	N	1.4E5	N	2.7E2	N	C8
8A	ACETIC ACID	2.5E4	N	3.8E5	1.0E3	7.6E2	2.0	LC7
8A	ACETIC ACID	2.5E4	N	3.8E5	1.0E3	7.6E2	2.0	LC8
8A	MALEIC ACID	1.0E3	N	1.5E4	N	3.0E1	N	C8
8A	BENZOIC ACID	1.4E5	N	2.1E6	N	4.2E3	N	LC7
8A	BENZOIC ACID	1.4E5	N	2.1E6	N	4.2E3	N	C8
8A	PHTHALIC ACID	6.0E3	N	9.0E4	N	1.8E2	N	LC7
8A	PHTHALIC ACID	6.0E3	N	9.0E4	N	1.8E2	N	LC8
8A	LONG CHAIN ACIDS	N	N	N	N	N	N	C8
8A	LONG CHAIN ACIDS	N	N	N	N	N	N	LC7
8B	HYDROXYACETIC ACID	8.8E4	N	1.3E6	N	2.6E3	N	LC7
8B	HYDROXYBENZOIC ACID	4.0E4	N	6.0E5	N	1.2E3	N	C7
8B	3-HYDROXYPROPANOIC ACID LACTONE	3.2E2	N	4.8E3	1.0E4	9.6	2.0E1	C10
8B	6-AMINOHEXANOIC ACID	N	N	N	N	N	N	LC8
8B	B-PROPIOLACTONE	3.2E2	N	1.6E3	N	3.2	N	NYD
8C	FORMAMIDE	3.0E4	N	4.5E5	N	9.0E2	N	LC7
8C	ACETAMIDE	4.5E5	N	6.8E6	N	1.4E4	N	LC7
8C	6-HEXANELACTAM (E-CAPROLACTAM)	1.0E3	N	1.5E4	N	3.0	N	C7
8D	METHYL METHACRYLATE	4.1E5	N	6.2E6	1.0E4	1.2E4	2.0E1	C7
8D	PHTHALATE ESTERS	5.0E3	N	7.5E4	1.5	1.5E2	.003	LC6
8D	ADIPATES	1.9E4	N	2.8E5	N	5.6E2	N	C8
8D	ADIPATES	1.9E4	N	2.8E5	N	5.6E2	N	C9
8D	ADIPATES	1.9E4	N	2.8E5	N	5.6E2	N	C10
8D	LONG CHAIN ESTERS	N	N	N	N	N	N	LC6

LIST A-7 - CHEMICAL CATEGORY

N = NOT YET ASSIGNED NYD = NOT YET DETERMINED

		GASEOUS		LIQUID		SOLID WASTE		SAMPLE
		HEALTH	ECOLOGY	HEALTH	ECOLOGY	HEALTH	ECOLOGY	FRACTION
		(MICROGM/CU M)		(MICROGM/L)		(MICROGM/GRAM)		
8D	METHYL BENZOATE	1.5E5	N	2.3E6	N	4.6E3	N	C10
8D	PHENYL BENZOATE	N	N	N	N	N	N	LC6
8D	DI-2-EHTYLHEXYL PHTHALATE	N	N	N	N	N	N	LC6
9	ACETONITRILE	7.0E4	N	1.1E6	1.0E5	2.1E3	2.0E2	C6
9	ACRYLONITRILE	4.5E4	N	6.8E5	1.0E3	1.4E3	2.0	C11
9	1-CYANOETHANE	1.8E3	N	2.7E4	N	5.4E1	N	C6
9	BUTYRONITRILE	2.3E4	N	3.4E5	N	6.8E2	N	NYD
9	1,3-DICYANO-L-HYDROXYBUTANE	N	N	N	N	N	N	NYD
9	BENZONITRILE	3.2E4	N	4.9E5	N	9.8E2	N	NYD
9	NAPHTHONITRILES	N	N	N	N	N	N	LC4
9	TETRAMETHYLSUCCINONITRILE	3.0E3	N	4.5E4	N	9.0E1	N	NYD
10A	METHYLAMINE	1.2E3	N	1.8E4	1.0E3	3.6E1	2.0	LC6
10A	ETHYLAMINE	1.8E4	N	2.7E5	1.0E3	5.4E2	2.0	C4
10A	ETHANOLAMINE	6.0E3	N	9.0E4	1.0E4	1.8E2	2.0E1	C10
10A	1,2-DIAMINOETHANE	2.5E4	N	3.8E5	1.0E3	7.6E2	2.0	C8
10A	3-AMINOPROPANE	N	N	N	N	N	N	C5
10A	PROPANOLAMINE	1.3E5	N	1.9E6	N	3.8E3	N	C9
10A	BUTYLAMINES	1.5E4	N	2.3E5	1.0E5	4.5E2	2.0E2	C6
10A	CYCLOHEXYLAMINE	4.0E4	N	6.0E5	1.0E4	1.2E3	2.0E1	C8
10B	ETHYLENEIMINE	3.3E2	N	5.0E5	N	1.0E1	N	C3
10B	DIMETHYLAMINE	1.8E4	N	2.7E5	1.0E3	5.4E2	2.0	C3
10B	ETHYLMETHYLAMINE	N	N	N	N	N	N	C4
10B	DIETHYLAMINE	7.5E4	N	1.1E6	1.0E3	2.2E3	2.0	C3
10B	MORPHOLINE	7.0E4	N	1.1E6	1.0E4	2.1E3	2.0E1	LC6
10C	ANILINE	1.9E4	N	3.0E5	1.0E3	6.0E2	2.0	C11
10C	AMINOTOLUENES (METHYL ANILINES)	1.1E2	N	1.7E3	N	3.0	N	C11
10C	DIMETHYLANILINE (XYLIDINES)	2.5E4	N	3.8E5	N	7.5E2	N	C11
10C	ANISIDINES	5.0E2	N	7.5E3	N	1.5E1	N	LC6
10C	1,4-DIAMINOBENZENE	4.5E3	N	6.8E4	N	1.4E2	N	LC6
10C	4-AMINOBIPHENYL	1.3E3	N	2.0E4	N	4.0E1	N	C6
10C	BENZIDINE (4,4'-DIAMINOBIPHENYL)	1.4E4	N	2.1E5	1.0E2	4.2E2	.20	LC7
10C	3,3'-DICHLOROBENZIDINE	6.6E3	N	9.9E4	N	2.0E2	N	LC7
10C	4,4'-METHYLENE-BIS-(2-CHLOROANILINE)	2.2E2	N	3.3E3	N	6.6	N	LC7
10C	1-AMINONAPHTHALENE	5.6E2	N	8.5E3	1.0E2	1.7E1	.20	LC7
10C	2-AMINONAPHTHALENE	1.7E2	N	2.5E3	1.0E2	5.0	.20	LC6

LIST A-7 - CHEMICAL CATEGORY

N = NOT YET ASSIGNED
NYD = NOT YET DETERMINED

		GASEOUS (MICROGM/CU M)		LIQUID (MICROGM/L)		SOLID WASTE (MICROGM/GRAM)		SAMPLE FRACTION
		HEALTH	ECOLOGY	HEALTH	ECOLOGY	HEALTH	ECOLOGY	
10D	N,N-DIMETHYLANILINE	2.5E4	N	3.8E5	N	7.5E2	N	LC6
11	DIAZOMETHANE	4.0E2	N	6.0E3	N	1.2E1	N	C5
11	MONOMETHYLHYDRAZINE	3.5E2	N	5.3E3	N	1.1E1	N	NYD
11	N,N-DIMETHYLHYDRAZINE	1.0E3	N	1.5E4	N	3.0E1	N	NYD
11	N,N'-DIMETHYLHYDRAZINE	3.2E1	N	5.0E2	N	1.0	N	C6
11	1,2-DIPHENYLHYDRAZINE	1.4E4	N	2.0E5	N	4.0E2	N	LC7
11	-DIMETHYLAMINOAZOBENZENE	2.0E3	N	3.0E4	N	6.0E1	N	NYD
12	N-NITROSO-DIMETHYLAMINE	1.2	N	1.8E1	N	.04	N	C9
12	N-NITROSO-DIETHYLAMINE	1.2E2	N	1.8E3	N	3.6	N	C10
12	N-NITROSO-DIPROPYLAMINE	2.4E3	N	3.6E4	N	7.2E1	N	C12
12	N-NITROSO-DIPROPYLAMINE	2.4E3	N	3.6E4	N	7.2E1	N	LC5
12	N-NITROSO-DIISOPROPYLAMINE	3.8E4	N	5.8E5	N	1.2E3	N	SC11
12	N-NITROSO-DIPENTYLAMINE	N	N	N	N	N	N	LC5
12	N-METHYL-N-NITROSO-ANILINE	1.3E3	N	1.9E4	N	3.8E1	N	LC5
12	N-NITROSO-DIPHENYLAMINE	7.4E4	N	1.1E6	N	2.2E3	N	LC5
13A	METHANETHIOL	1.0E3	N	1.5E4	N	3.0E1	N	SGC
13A	ETHANETHIOL	1.0E3	N	1.5E4	N	3.0E1	N	SGC
13A	PROPANETHIOLS	8.1E4	N	1.2E6	N	2.4E3	N	SGC
13A	N-BUTANETHIOL	1.5E3	N	2.3E4	N	4.5E1	N	SGC
13A	BENZENETHIOL	2.1E3	N	3.1E4	N	6.2E1	N	LC6
13A	1-ANTHRACENETHIOL	N	N	N	N	N	N	LC6
13A	PERCHLOROMETHANETHIOL	8.0E2	N	1.2E4	N	2.4E1	N	LC6
13B	DIMETHYL SULFIDE	2.4E4	N	3.6E5	N	7.2E2	N	SGC
13B	DIETHYL SULFIDE	N	N	N	N	N	N	SGC
13B	DIPHENYL SULFIDE	9.6E4	N	1.4E6	N	2.9E3	N	C9
13B	METHYL DISULFIDE	N	N	N	N	N	N	C8
14A	BENZENESULFONIC ACID	4.0E4	N	6.0E5	N	1.2E3	N	LC8
14A	9,10-ANTHRAQUINONEDISULFONIC ACID	N	N	N	N	N	N	LC8
14B	DIMETHYL SULFOXIDE	8.1E2	N	1.2E3	N	2.4	N	C11

LIST A-7 - CHEMICAL CATEGORY

N = NOT YET ASSIGNED NYD = NOT YET DETERMINED

		GASEOUS		LIQUID		SOLID WASTE		SAMPLE
		HEALTH	ECOLOGY	HEALTH	ECOLOGY	HEALTH	ECOLOGY	FRACTION
		(MICROGM/CU M)		(MICROGM/L)		(MICROGM/GRAM)		
15	BENZENE	3.0E3	N	4.5E4	1.0E3	9.0E1	2.0	C6
15	TOLUENE	3.8E5	N	5.6E6	1.0E3	1.1E4	2.0	C8
15	ETHYL BENZENE	4.4E5	N	6.5E6	1.0E3	1.3E4	2.0	C6
15	STYRENE	4.2E5	N	6.3E6	1.0E3	1.3E4	2.0	C9
15	PROPYL BENZENE	2.2E5	N	3.3E6	1.0E3	6.6E3	2.0	C9
15	ISOPROPYL BENZENE	6.3E4	N	9.5E5	1.0E3	1.9E3	2.0	C9
15	INDAN	2.3E5	N	3.4E6	N	6.8E3	N	LC2
15	INDAN	2.3E5	N	3.4E6	N	6.8E3	N	LC3
15	INDENE	4.5E4	N	6.8E5	N	1.4	N	LC2
15	INDENE	4.5E4	N	6.8E5	N	1.4	N	LC3
15	BUTYLBENZENE	2.3E5	N	3.4E6	N	6.8E3	N	C11
15	BIPHENYL	1.0E3	N	1.5E4	N	3.0E1	N	LC2
15	4,4'-DIPHENYLBIPHENYL	N	N	N	N	N	N	LC2
15	4,4'-DIPHENYLBIPHENYL	N	N	N	N	N	N	LC3
15	XYLENES	4.4E5	N	6.5E6	1.0E3	1.3E4	2.0	C9
15	DIALKYL BENZENES	2.3E5	N	3.4E6	1.0E3	6.8E3	2.0	C10
15	DIALKYL BENZENES	2.3E5	N	3.4E6	1.0E3	6.8E3	2.0	C11
15	DIALKYL BENZENES	2.3E5	N	3.4E6	1.0E3	6.8E3	2.0	C12
15	TETRAHYDRONAPHTHALENE	1.3E5	N	2.0E6	1.0E3	4.0E3	2.0	C12
15	TETRAHYDRONAPHTHALENE	1.3E5	N	2.0E6	1.0E3	4.0E3	2.0	LC2
15	DIHYDRONAPHTHALENE	1.3E5	N	2.0E6	N	4.0E3	N	LC2
15	TERPHENYLS	9.0E3	N	1.4E5	N	2.8E2	N	LC3
15	TRIMETHYLBENZENES	1.2E5	N	1.8E6	N	3.6E3	N	C10
15	TETRAMETHYLBENZENES	N	N	N	1.0E4	N	2.0E1	C11
16A	CHLOROBENZENE	3.5E5	N	5.3E6	1.0E2	1.1E4	.20	C8
16A	BROMO AND DIBROMOBENZENES	N	N	N	N	N	N	C9
16A	BROMO AND DIBROMOBENZENES	N	N	N	N	N	N	C12
16A	BROMO AND DIBROMOBENZENES	N	N	N	N	N	N	LC2
16A	BROMOCHLOROBENZENES	N	N	N	N	N	N	C12
16A	BROMOCHLOROBENZENES	N	N	N	N	N	N	LC2
16A	1,2-DICHLOROBENZENE	3.0E5	N	4.5E6	1.0E2	9.0E3	.20	C10
16A	1,3-DICHLOROBENZENE	N	N	N	N	N	N	C10
16A	1,4-DICHLOROBENZENE	4.5E5	N	6.8E6	1.0E2	1.4E4	.20	C10
16A	POLYCHLORINATED BENZENES	3.4E4	N	5.1E5	1.0E2	1.0E3	.20	LC2
16A	POLYCHLORINATED BENZENES	3.4E4	N	5.1E5	1.0E2	1.0E3	.20	LC3
16A	2-CHLOROTOLUENE	2.5E5	N	3.8E6	N	7.5E3	N	C9
16A	CHLORONAPHTHALENES	6.9E4	N	1.0E6	N	1.5E1	1.E-5	LC2
16A	CHLORONAPHTHALENES	6.9E4	N	1.0E6	N	1.5E1	1.E-5	LC3
16A	POLYCHLORINATED BIPHENYLS	5.0E2	N	7.5E3	.01	N	N	LC2

LIST A-7 - CHEMICAL CATEGORY

N = NOT YET ASSIGNED NYD = NOT YET DETERMINED

		GASEOUS		LIQUID		SOLID WASTE		SAMPLE
		HEALTH	ECOLOGY	HEALTH	ECOLOGY	HEALTH	ECOLOGY	FRACTION
		(MICROGM/CU M)		(MICROGM/L)		(MICROGM/GRAM)		
16A	POLYCHLORINATED BIPHENYLS	5.0E2	N	7.5E3	.01	N	N	LC3
16B	-CHLOROTOLUENE	5.0E3	N	7.5E4	1.0E2	1.5	.20	C11
16B	BIS-(CHLOROMETHYL)BENZENE	N	N	N	N	N	N	LC2
17	NITROBENZENE	5.0E3	N	7.5E4	1.0E3	1.5E2	2.0	C12
17	NITROBENZENE	5.0E3	N	7.5E4	1.0E3	1.5E2	2.0	LC4
17	4-NITROBIPHENYL	1.3E3	N	2.0E4	N	4.0E1	N	LC4
17	1-CHLORO-2-NITROBENZENE	1.3E4	N	2.0E5	1.0E4	4.0E2	2.0E1	LC4
17	1-CHLORO-4-NITROBENZENE	1.9E4	N	2.9E5	N	5.8E2	N	LC4
17	METHOXYNITROBENZENES	4.5E3	N	6.8E4	N	1.4E2	N	LC5
17	NITROTOLUENES	3.0E4	N	4.5E5	1.0E3	9.0E2	2.0	LC5
17	DINITROTOLUENES	1.5E3	N	2.3E4	1.0E3	4.5E1	2.0	LC5
18A	PHENOL	1.9E4	N	5.0	5.0E2	.01	1.0	C11
18A	CRESOLS (METHYL PHENOLS)	2.2E4	N	5.0	5.0E2	.01	1.0	C12
18A	CRESOLS (METHYL PHENOLS)	2.2E4	N	5.0	5.0E2	.01	1.0	LC6
18A	2-METHOXYPHENOL	3.3E4	N	5.0	5.0E2	.01	1.0	LC6
18A	ETHYLPHENOLS	N	N	5.0	5.0E2	.01	1.0	LC6
18A	PHENYLPHENOLS	2.3E4	N	5.0	5.0E2	.01	1.0	LC6
18A	2,2'-DIHYDROXYDIPHENYLS	6.8E3	N	5.0	5.0E2	.01	1.0	LC6
18A	XYLENOLS (DIMETHYL PHENOLS)	1.3E4	N	5.0	5.0E2	.01	1.0	C12
18A	ALKYL CRESOLS	2.4E4	N	5.0	5.0E2	.01	1.0	LC6
18A	ALKYL CRESOLS	2.4E4	N	5.0	5.0E2	.01	1.0	LC6
18A	POLYALKYL PHENOLS	1.5E4	N	5.0	5.0E2	.01	1.0	LC6
18B	CATECHOL (1,2-DIHYDROXYBENZENE)	2.0E4	N	5.0	5.0E2	.01	1.0	LC6
18B	1,3-DIHYDROXYBENZENE	4.5E4	N	5.0	5.0E2	.01	1.0	C10
18B	1,4-DIHYDROXYBENZENE	2.0E3	N	5.0	5.0E2	.01	1.0	LC6
18B	1,2,3-TRIHYDROXYBENZENES	3.6E4	N	5.0	5.0E2	.01	1.0	LC6
18C	1-NAPHTHOL	1.2E5	N	5.0	5.0E2	.01	1.0	LC6
18C	2-NAPHTHOL	1.1E5	N	5.0	5.0E2	.01	1.0	LC6
18C	PHENANTHROLS	N	N	5.0	5.0E2	.01	1.0	LC6
18C	INDANOLS	1.5E5	N	5.0	5.0E2	.01	1.0	LC6
18C	ACENAPHTHOLS	N	N	5.0	5.0E2	.01	1.0	LC6
18C	2-HYDROXYFLUORENE	N	N	5.0	5.0E2	.01	1.0	LC6
18C	2-HYDROXYDIBENZOFURAN	N	N	5.0	5.0E2	.01	1.0	LC6

LIST A-7 - CHEMICAL CATEGORY

N = NOT YET ASSIGNED NYD = NOT YET DETERMINED

		GASEOUS		LIQUID		SOLID WASTE		SAMPLE
		HEALTH	ECOLOGY	HEALTH	ECOLOGY	HEALTH	ECOLOGY	FRACTION
		(MICROGM/CU M)		(MICROGM/L)		(MICROGM/GRAM)		
19	2-CHLOROPHENOL	3.0E4	N	5.0	5.0E2	.01	1.0	C10
19	2,4-DICHLOROPHENOL	7.0E3	N	5.0	5.0E2	.01	1.0	C12
19	PENTHACHLOROPHENOL	5.0E2	N	5.0	5.0E2	.01	1.0	LC7
19	CHLORINATED CRESOLS	2.3E4	N	5.0	5.0E2	.01	1.0	LC6
20	2-NITROPHENOL	5.8E4	N	5.0	5.0E2	.01	1.0	C12
20	2-NITROPHENOL	5.8E4	N	5.0	5.0E2	.01	1.0	LC7
20	3-NITROPHENOL	2.0E4	N	5.0	5.0E2	.01	1.0	C11
20	3-NITROPHENOL	2.0E4	N	5.0	5.0E2	.01	1.0	LC12
20	4-NITROPHENOL	1.6E4	N	5.0	5.0E2	.01	1.0	LC12
20	DINITROPHENOLS	1.4E3	N	5.0	5.0E2	.01	1.0	LC7
20	4,6-DINITRO-O-CRESOL	2.0E2	N	5.0	5.0E2	.01	1.0	LC7
20	DINITRO-P-CRESOL	6.8E2	N	5.0	5.0E2	.01	1.0	LC7
20	2-AMINO-4,6-DINITROPHENOL	4.6E4	N	5.0	5.0E2	.01	1.0	LC7
20	2,4,6-TRINITROPHENOL	1.0E2	N	5.0	5.0E2	.01	1.0	LC7
21	NAPHTHALENE	5.0E4	N	7.5E5	1.0E2	1.5E3	.20	LC2
21	NAPHTHALENE	5.0E4	N	7.5E5	1.0E2	1.5E3	.20	C11
21	MONOALKYL NAPHTHALENES	2.3E5	N	3.4E6	N	6.8E3	N	LC2
21	PHENYL NAPHTHALENES	N	N	N	N	N	N	LC3
21	DIMETHYL NAPHTHALENES	2.3E5	N	3.4E6	N	6.8E3	N	LC2
21	ACENAPHTHENE	N	N	N	N	N	N	LC3
21	ACENAPHTHYLENE	N	N	N	N	N	N	LC3
21	ANTHRACENE	5.6E4	N	8.4E5	N	1.7E3	N	LC3
21	2,7-DIMETHYLANTHRACENE	N	N	N	N	N	N	LC3
21	PHENANTHRENE	1.6E3	N	2.4E4	N	4.8E1	N	LC3
21	METHYLPHENANTHRENES	3.0E4	N	4.6E5	N	9.1E2	N	LC3
21	NAPHTHACENE	N	N	N	N	N	N	LC3
21	BENZ(A)ANTHRACENE	4.5E1	N	6.7E2	N	1.3	N	LC3
21	7,12-DIMETHYLBENZ(A)ANTHRACENE	.26	N	3.9	N	.01	N	LC3
21	BENZO(C)PHENANTHRENE	2.7E4	N	4.1E5	N	8.2E2	N	LC3
21	CHRYSENE	2.2E3	N	3.3E4	N	6.6E1	N	LC3
21	METHYL CHRYSENES	1.8E3	N	2.7E4	N	5.4E1	N	LC3
21	TRIPHENYLENE	N	N	N	N	N	N	LC3
21	PYRENE	2.3E5	N	3.5E6	N	6.9E3	N	LC3
21	1-METHYLPYRENE	N	N	N	N	N	N	LC3
21	DIMETHYL PYRENES	N	N	N	N	N	N	LC3
21	1,2-BENZONAPHTHACENE	N	N	N	N	N	N	LC3
21	BENZO(G)CHRYSENE	1.6E4	N	2.4E5	N	4.8E2	N	LC3

LIST A-7 - CHEMICAL CATEGORY

N = NOT YET ASSIGNED NYD = NOT YET DETERMINED

		GASEOUS		LIQUID		SOLID WASTE		SAMPLE
		HEALTH (MICROGM/CU M)	ECOLOGY	HEALTH (MACROGM/L)	ECOLOGY	HEALTH (MICROGM/GRAM)	ECOLOGY	FRACTION
21	DIBENZ(A,C)ANTHRACENE	9.9E3	N	1.5E5	N	3.0E2	N	LC3
21	DIBENZ(A,H)ANTHRACENE	.09	N	1.4	N	.003	N	LC3
21	BENZO(A)PYRENE	.02	N	.30	N	.06	N	LC3
21	BENZO(E)PYRENE	3.0E3	N	4.6E4	N	9.1E1	N	LC3
21	PERYLENE	N	N	N	N	N	N	NYD
21	PICENE	2.5E3	N	3.8E4	N	7.5E1	N	LC3
21	DIBENZO(A,H)PYRENE	3.7E3	N	5.6E4	N	1.1E2	N	LC3
21	DIBENZO(A,I)PYRENE	4.3E1	N	6.5E2	N	1.3	N	LC3
21	DIBENZO(A,)PYRENE	1.1E3	N	1.6E4	N	3.2E1	N	LC3
21	BENZO(G,H,I)PERYLENE	N	N	N	N	N	N	LC3
21	CORONENE	N	N	N	N	N	N	LC3
22	DICYCLOPENTADIENE	1.6E4	N	2.4E5	1.0E2	4.8E2	.20	C10
22	FLUORENE	N	N	N	N	N	N	LC2
22	CYCLOPENTANONAPHTHALENE	N	N	N	N	N	N	LC2
22	2,3-BENZOFLUORENE	N	N	N	N	N	N	LC3
22	FLUORANTHENE	9.0E4	N	1.4E6	N	2.8E3	N	LC3
22	1,2-BENZOFLUORENE	N	N	N	N	N	N	LC3
22	CYCLOPENTA(DEF)PHENANTHRENE	N	N	N	N	N	N	LC3
22	BENZO(K)FLUORANTHENE	1.6E3	N	2.5E4	N	4.9E1	N	LC3
22	BENZO(E)FLUORANTHENE	9.0E2	N	1.4E4	N	2.8E1	N	LC3
22	BENZO(J)FLUORANTHENE	6.5E3	N	9.8E4	N	2.0E2	N	LC3
22	1,2:5,6-DIBENZOFLUORENE	1.3E4	N	2.0E5	N	4.0E2	N	LC3
22	BENZO(B)FLUORANTHENE	9.0E2	N	1.3E4	N	2.7E1	N	LC3
22	3-METHYL-CHOLANTHRENE	3.8	N	5.6E1	N	.11	N	LC3
22	INDENO(1,2,3,CD)PYRENE	1.6E3	N	2.4E4	N	4.8E1	N	LC3
22	TRIBENZYLENEBENZENE (TRUXENE)	N	N	N	N	N	N	LC3
23A	PYRIDINE	1.5E4	N	2.3E5	1.0E4	4.5E2	2.0E1	C8
23A	PICOLINES	3.6E4	N	5.3E5	N	1.1E3	N	C6
23A	MONOSUBSTITUTED ALKYL PYRIDINES	N	N	N	N	N	N	LC3
23A	PHENYL PYRIDINES	N	N	N	N	N	N	C8
23A	CHLOROPYRIDINE	4.8E3	N	7.2E4	N	1.4E2	N	C9
23A	CHLOROPYRIDINE	4.8E3	N	7.2E4	N	1.4E2	N	C10
23A	COLLIDINES	6.9E4	N	1.0E6	N	2.1E3	N	C8
23A	COLLIDINES	6.9E4	N	1.0E6	N	2.1E3	N	LC3
23A	DI AND POLYSUBSTITUTED PYRIDINES	2.7E4	N	4.1E5	N	8.2E2	N	C10
23B	QUINOLINE; ISOQUINOLINE	1.6E4	N	2.4E5	N	4.7E2	N	LC6
23B	2-METHYLQUINOLINE	5.5E4	N	8.3E5	N	1.7E3	N	LC6

LIST A-7 - CHEMICAL CATEGORY

N = NOT YET ASSIGNED NYD = NOT YET DETERMINED

		GASEOUS		LIQUID		SOLID WASTE		SAMPLE
		HEALTH (MICROGM/CU M)	ECOLOGY	HEALTH (MICROGM/L)	ECOLOGY	HEALTH (MICROGM/GRAM)	ECOLOGY	FRACTION
23B	DIMETHYLQUINOLINES, DIMETHYLISOQUINOLINES	N	N	N	N	N	N	LC6
23B	ACRIDINE	9.0E4	N	1.4E6	N	2.7E3	N	LC6
23B	DIHYDROACRIDINE	N	N	N	N	N	N	LC6
23B	BENZO(C)QUINOLINE	N	N	N	N	N	N	LC6
23B	BENZO(F)QUINOLINE	N	N	N	N	N	N	LC6
23B	BENZO(H)QUINOLINE	N	N	N	N	N	N	LC6
23B	BENZ(A)ACRIDINE	N	N	N	N	N	N	LC6
23B	BENZ(C)ACRIDINE	1.1E4	N	1.6E5	N	3.2E2	N	LC6
23B	DIBENZ(A,J)ACRIDINE	2.5E2	N	3.7E3	N	7.4	N	LC6
23B	DIBENZ(A,H)ACRIDINE	2.2E2	N	3.4E3	N	6.7	N	LC6
23B	DIBENZ(C,H)ACRIDINE	2.3E4	N	3.5E5	N	6.9E2	N	LC6
23B	2,3-BENZ-4-AZAFLUORENE	N	N	N	N	N	N	NYD
23B	INDENO(1,2,3-IJ)ISOQUINOLINE	N	N	N	N	N	N	LC6
23C	PYRROLE	2.7E3	N	4.0E4	N	8.1E1	N	LC6
23C	INDOLE	1.1E4	N	1.7E5	N	3.3E2	N	LC6
23C	METHYLINDOLES	4.5E4	N	6.8E5	N	1.4E3	N	LC6
23C	CARBAZOLE	2.3E4	N	3.4E5	N	6.8E2	N	LC6
23C	BENZO(A)CARBAZOLE	1.9E4	N	2.8E5	N	5.6E2	N	LC6
23C	DIBENZO(A,I)CARBAZOLE	1.2E4	N	1.8E5	N	3.6E2	N	LC6
23C	DIBENZO(C,D)CARBAZOLE	1.0E3	N	1.5E3	N	3.0	N	LC6
23C	DIBENZO(A,G)CARBAZOLE	6.0E3	N	9.0E4	N	1.8E2	N	LC6
23D	BENZOTHIAZOLE	4.3E3	N	6.4E4	N	1.3E2	N	LC6
23D	METHYL BENZOTHIAZOLES	4.7E3	N	7.1E4	N	1.4E2	N	LC6
24	FURAN	N	N	N	N	N	N	C5
24	BENZOFURAN	N	N	N	N	N	N	C10
24	DIBENZOFURAN	N	N	N	N	N	N	LC5
24	METHYLDIBENZOFURANS	N	N	N	N	N	N	LC5
24	NAPHTHOFURANS	N	N	N	N	N	N	LC5
24	BENZO(B)NAPHTHO(2,3-D)FURAN	N	N	N	N	N	N	LC5
24	PHENANTHRO(9,10-B)FURAN	N	N	N	N	N	N	LC5
24	1,9-BENZOXANTHENE	N	N	N	N	N	N	LC5
24	TETRAHYDROFURAN	5.9E5	N	9.0E6	N	1.8E4	N	LC5
25	THIOPHENE	4.5E3	N	6.8E4	N	1.4E2	N	C5
25	METHYLTHIOPHENES	2.3E4	N	3.4E5	N	7.0E2	N	C8
25	DIMETHYLTHIOPHENES	N	N	N	N	N	N	C9

LIST A-7 - CHEMICAL CATEGORY

N = NOT YET ASSIGNED

NYD = NOT YET DETERMINED

		GASEOUS		LIQUID		SOLID WASTE		SAMPLE
		HEALTH (MICROGM/CU M)	ECOLOGY	HEALTH (MICROGM/L)	ECOLOGY	HEALTH (MICROGM/GRAM)	ECOLOGY	FRACTION
25	TRI AND TETRAMETHYL THIOPHENES	N	N	N	N	N	N	C10
25	2,2-BITHIOPHENE	N	N	N	N	N	N	LC4
25	BENZO(B)THIOPHENE	2.3E4	N	3.5E5	N	7.0E2	N	LC4
25	DIBENZOTHIOPHENE	N	N	N	N	N	N	LC4
25	BENZONAPHTHOTHIOPHENE	9.9E2	N	1.5E4	N	3.0E1	N	LC4
26A	TRIMETHYLARSINE	N	N	N	N	N	N	C5
26A	TETRAMETHYLLEAD	1.5E2	N	2.3E3	N	4.5	N	NYD
26A	TETRAETHYLLEAD	1.0E2	N	1.5E3	1.0E2	3.0	.20	C12
26A	TETRAETHYLLEAD	1.0E2	N	1.5E3	1.0E2	3.0	.20	LC1
26A	ALKYL MERCURY	1.0E1	N	1.5E2	.02	.30	4.E-5	C6
26A	ORGANOTIN	1.0E2	N	1.5E3	N	3.0	N	NYD
26A	ORGANOGERMANES	3.2E4	N	4.7E5	N	9.4E2	N	NYD
26A	ALKYL STIBINES	N	N	N	N	N	N	NYD
26B	FERROCENE	6.0E4	N	9.0E5	N	1.8E3	N	NYD
26B	NICKELOCENE	3.5E3	N	5.2E4	N	1.0E2	N	NYD
26B	DIBENZE CHROMIUM	N	N	N	N	N	N	NYD
26C	COMPLEXED NICKEL	N	N	N	N	N	N	NYD
26C	COMPLEXED COPPER	3.0E3	N	4.5E4	N	9.0E1	N	NYD
26C	COMPLEXED IRON	N	N	N	N	N	N	NYD
26C	COMPLEXED TIN	N	N	N	N	N	N	NYD
26C	COMPLEXED ZINC	N	N	N	N	N	N	NYD

LIST A-8 - SSMS/AA CATEGORY

N = NOT YET ASSIGNED NYD = NOT YET DETERMINED

		GASEOUS		LIQUID		SOLID WASTE		SAMPLE FRACTION
		HEALTH (MICROGM/CU M)	ECOLOGY	HEALTH (MICROGM/L)	ECOLOGY	HEALTH (MICROGM/GRAM)	ECOLOGY	
27	LITHIUM, LI	2.2E1	N	3.3E2	3.8E2	.70	.75	SSMS
27	LITHIUM ION, LI+	2.2E1	N	3.3E2	3.8E2	.70	.75	SSMS
27	LITHIUM FLUORIDE, LIF (AS LI)	2.2E1	N	3.3E2	3.8E2	.70	.75	SSMS
27	LITHIUM CARBONATE, LI2CO3	2.2E1	N	3.3E2	3.8E2	.70	.75	SSMS
27	LITHIUM HYDRIDE, LIH	2.5E1	N	3.8E2	N	.75	N	SSMS
28	SODIUM, NA	5.3E4	N	8.0E5	N	1.6E3	N	SSMS
28	SODIUM ION, NA+	5.3E4	N	8.0E5	N	1.6E3	N	SSMS
28	SODIUM HYDROXIDE, NAOH	2.0E3	N	3.0E4	N	6.0E1	N	SSMS
29	POTASSIUM, K	N	N	N	N	N	N	SSMS
29	POTASSIUM ION, K+ (AS K)	N	N	N	2.3E4	N	4.6E1	SSMS
29	POTASSIUM HYDROXIDE, KOH	2.0E3	N	3.0E4	N	6.0E1	N	SSMS
30	RUBIDIUM ION, RB+	1.2E5	N	1.8E6	N	3.6E3	N	SSMS
31	CESIUM ION, CE+	8.2E4	N	1.2E6	N	2.5E3	N	SSMS
32	BERYLLIUM, BE	2.0	N	3.0E1	5.5E1	.06	.11	SSMS
32	BERYLLIUM ION, BE++	2.0	N	3.0E1	5.5E1	.06	.11	SSMS
32	BERYLLIUM OXIDE, BEO(AS BE)	2.0	N	3.0E1	5.5E1	.06	.11	SSMS
32	BERYL, BEO AL2O3 SIO2 (AS BE)	2.0	N	3.0E1	5.5E1	.06	.11	SSMS
33	MAGNESIUM, MG	6.0E3	N	9.0E4	8.7E4	1.8E2	1.7E2	SSMS
33	MAGNESIUM ION, MG++	6.0E3	N	9.0E4	8.7E4	1.8E2	1.7E2	SSMS
33	MAGNESIUM OXIDE, MGO	1.0E4	N	1.5E5	1.0E5	3.0E2	2.0E2	SSMS
33	MAGNESIUM FLUORIDE, MGF2 (AS MG)	6.0E3	N	9.0E4	8.7E4	1.8E2	1.7E2	SSMS
33	MAGNESIUM SULFATE, MGSO4 (AS MG)	6.0E3	N	9.0E4	8.7E4	1.8E2	1.7E2	SSMS
33	MAGNESITE, MGCO3 (AS MG)	6.0E3	N	9.0E4	8.7E4	1.8E2	1.7E2	SSMS
33	DOLOMITE, MGCO3 CACO3 (AS MG)	6.0E3	N	9.0E4	8.7E4	1.8E2	1.7E2	SSMS
33	ASBESTOS (AS MG)	6.0E3	N	9.0E4	8.7E4	1.8E2	1.7E2	SSMS
34	CALCIUM ION, CA++	1.6E4	N	2.4E5	1.6E4	4.8E2	3.2E1	SSMS
34	CALCIUM FLUORIDE, CAF2	N	N	N	N	N	N	SSMS

LIST A-8 - SSMS/AA CATEGORY

N = NOT YET ASSIGNED NYD = NOT YET DETERMINED

		GASEOUS		LIQUID		SOLID WASTE		SAMPLE
		HEALTH (MICROGM/CU M)	ECOLOGY	HEALTH (MICROGM/L)	ECOLOGY	HEALTH (MICROGM/GRAM)	ECOLOGY	FRACTION
34	CALCIUM CARBONATE, CADO3	N	N	N	N	N	N	SSMS
34	CALCIUM SULFATE, CASO4	N	N	N	N	N	N	SSMS
34	DOLOMITE, MGCO3 CACO3	N	N	N	N	N	N	SSMS
35	STRONTIUM	3.1E3	N	4.6E4	N	9.2E1	N	SSMS
35	STRONTIUM ION, SR++ (AS SR)	3.1E3	N	4.6E4	N	9.2E1	N	SSMS
35	STRONTIUM FLUORIDE, SRF2 (AS SR)	3.1E3	N	4.6E4	N	9.2E1	N	SSMS
35	STRONTIUM SULFATE, SRSO4 (AS SR)	3.1E3	N	4.6E4	N	9.2E1	N	SSMS
36	BARIUM, BA	5.0E2	N	5.0E3	2.5E3	1.0E1	5.0	SSMS
36	BARIUM ION, BA++ (AS BA)	5.0E2	N	5.0E3	2.5E3	1.0E1	5.0	SSMS
36	BARIUM SULFIDE, BAS (AS BA)	5.0E2	N	5.0E3	2.5E3	1.0E1	5.0	SSMS
36	BARIUM THIOCARBONATE, BACS3 (AS BA)	5.0E2	N	5.0E3	2.5E3	1.0E1	5.0	SSMS
36	BARIUM FLUORIDE, BAF2 (AS BA)	5.0E2	N	5.0E3	2.5E3	1.0E1	5.0	SSMS
36	BARIUM CARBONATE, BACO3 (AS BA)	5.0E2	N	5.0E3	2.5E3	1.0E1	5.0	SSMS
36	BARIUM SULFATE, BASO4 (AS BA)	5.0E2	N	5.0E3	2.5E3	1.0E1	5.0	SSMS
37	BARON, B	3.1E3	N	4.7E4	2.5E4	9.3E1	5.0E1	SSMS
37	BORATE, BO3 (AS B)	3.1E3	N	4.7E4	2.5E4	9.3E1	5.0E1	SSMS
37	METABORATE, BO2- (AS B)	3.1E3	N	4.7E4	2.5E4	9.3E1	5.0E1	SSMS
37	BORON OXIDE, B2O3	1.0E4	N	1.5E5	N	3.0E2	N	SSMS
38	ALUMINUM, AL	5.2E3	N	8.0E4	1.0E3	1.6E2	2.0	SSMS
38	ALUMINUM ION, AL+++	5.2E3	N	8.0E4	1.0E3	1.6E2	2.0	SSMS
38	ALUMINUM OXIDE, AL2O3	1.0E4	N	1.5E5	N	3.0E2	N	SSMS
38	BAUXITE, AL2O3 3H2O (AS AL)	5.2E3	N	8.0E4	1.0E3	1.6E2	2.0	SSMS
38	HYDRATED ALUMINUM SILICATE (AS AL)	5.2E3	N	8.0E4	1.0E3	1.6E2	2.0	SSMS
38	ALUMS (M AL (SO4)2) (H2O)X (AS AL)	5.2E3	N	8.0E4	1.0E3	1.6E2	2.0	SSMS
39	GALLIUM, GA	5.0E3	N	7.4E4	N	1.5E2	N	SSMS
39	ELEMENTAL SPECIES, GA	5.0E3	N	7.4E4	N	1.5E2	N	SSMS
39	GALLOUS, GA+1 (AS GA)	5.0E3	N	7.4E4	N	1.5E2	N	SSMS
39	GALLIC, GA+3 (AS GA)	5.0E3	N	7.4E4	N	1.5E2	N	SSMS
39	GALLIUM SESQUIOXIDE, GA2O3 (AS GA)	5.0E3	N	7.4E4	N	1.5E2	N	SSMS
40	INDIUM, IN	1.0E2	N	1.5E3	N	3.0	N	SSMS
40	INDIUM ION, IN+3	1.0E2	N	1.5E3	N	3.0	N	SSMS

LIST A-8 - SSMS/AA CATEGORY

N = NOT YET ASSIGNED NYD = NOT YET DETERMINED

		GASEOUS		LIQUID		SOLID WASTE		SAMPLE FRACTION
		HEALTH	ECOLOGY	HEALTH	ECOLOGY	HEALTH	ECOLOGY	
		(MICROGM/CU M)		(MICROGM/L)		(MICROGM/GRAM)		
41	THALLIUM, TL	1.0E2	N	1.5E3	N	3.0	N	SSMS
41	THALLOUS, TL+1	1.0E2	N	1.5E3	N	3.0	N	SSMS
41	THALLIC, TL+3	1.0E2	N	1.5E3	N	3.0	N	SSMS
42	ELEMENTAL CARBON	3.5E3	N	5.3E4	N	1.6E2	N	SSMS
42	COAL	N	N	N	N	N	N	SSMS
42	CARBIDE, C-	N	N	N	N	N	N	SSMS
42	CARBONATE, CO3-2	N	N	N	N	N	N	SSMS
42	BICARBONATE, HCO3-	N	N	N	N	N	N	SSMS
42	CARBONYL, CO=	N	N	N	N	N	N	SSMS
42	CARBON MONOXIDE	4.0E4	1.2E5	6.0E5	6.0E1	N	N	SSMS
42	CARBON DIOXIDE	9.0E6	N	N	N	N	N	SSMS
43	SILICON, SI	1.0E4	N	1.5E5	N	3.0E2	N	SSMS
43	ORTHOSILICATE, SIO4-2	N	N	N	N	N	N	SSMS
43	METASILICATE, SIO3-2	N	N	N	N	N	N	SSMS
43	SILANE, SIH4	7.0E2	N	1.1E4	N	2.1E1	N	SSMS
43	SILICON DIOXIDE, SIO2	1.0E4	N	1.5E5	N	3.0E2	N	SSMS
43	SILICON DISULFIDE, SIS2	N	N	N	N	N	N	SSMS
43	SILICON CARBIDE, SIC	1.0E4	N	1.5E5	N	3.0E2	N	SSMS
44	GERMANIUM, GE	5.6E2	N	8.4E3	N	1.7E1	N	SSMS
44	GERMANOUS, GE+2 (AS GE)	5.6E2	N	8.4E3	N	1.7E1	N	SSMS
44	GERMANIC, GE+4 (AS GE)	5.6E2	N	8.4E3	N	1.7E1	N	SSMS
44	GERMANOUS SULFIDE, GES (AS GE)	5.6E2	N	8.4E3	N	1.7E1	N	SSMS
44	GERMANIC SULFIDE, GES2 (AS GE)	5.6E2	N	8.4E3	N	1.7E1	N	SSMS
44	GERMANE, GEH4 (AS GE)	5.6E2	N	8.4E3	N	1.7E1	N	SSMS
44	GERMANIUM OXIDE, GEO2 (AS GE)	5.6E2	N	8.4E3	N	1.7E1	N	SSMS
45	TIN, SN	N	N	N	N	N	N	SSMS
45	STANNOUS, SN+2	N	N	N	N	N	N	SSMS
45	STANNIC, SN+4	N	N	N	N	N	N	SSMS
45	TIN OXIDE, SNO2	1.0E4	N	1.5E5	N	3.0	N	SSMS
46	LEAD, PH	1.5E2	N	2.5E2	5.0E1	.50	.10	SSMS
46	ELEMENTAL LEAD, PB	1.5E2	N	2.5E2	5.0E1	.50	.10	SSMS

LIST A-8 - SSMS/AA CATEGORY

N = NOT YET ASSIGNED NYD = NOT YET DETERMINED

		GASEOUS HEALTH (MICROGM/CU M)	GASEOUS ECOLOGY (MICROGM/CU M)	LIQUID HEALTH (MICROGM/L)	LIQUID ECOLOGY (MICROGM/L)	SOLID WASTE HEALTH (MICROGM/GRAM)	SOLID WASTE ECOLOGY (MICROGM/GRAM)	SAMPLE FRACTION
46	PLUMBOUS, PB+2	1.5E2	N	2.5E2	5.0E1	.50	.10	SSMS
46	PLUMBIC, PB+4 (AS PB)	1.5E2	N	2.5E2	5.0E1	.50	.10	SSMS
46	LEAD MONOXIDE, PBO (AS PB)	1.5E2	N	2.5E2	5.0E1	.50	.10	SSMS
46	LEAD SULFATE, PBSO4 (AS PB)	1.5E2	N	2.5E2	5.0E1	.50	.10	SSMS
46	LEAD SULFIDE, PBS (AS PB)	1.5E2	N	2.5E2	5.0E1	.50	.10	SSMS
46	LEAD CARBONATE, PBCO3 (AS PB)	1.5E2	N	2.5E2	5.0E1	.50	.10	SSMS
46	LEAD PHOSPHATE, PB3(PO4)2 (AS PB)	1.5E2	N	2.5E2	5.0E1	.50	.10	SSMS
46	LEAD CHROMATE, PBCRO4 (AS PB)	1.5E2	N	2.5E2	5.0E1	.50	.10	SSMS
46	LEAD MOLYBDATE, PBMOO4 (AS PB)	1.5E2	N	2.5E2	5.0E1	.50	.10	SSMS
46	LEAD ARSENATE, PBHASO4 (AS PB)	1.5E2	N	2.5E2	5.0E1	.50	.10	SSMS
47	NITRIDE, N---	N	N	N	N	N	N	SSMS
47	NITRATE, NO3-	N	N	N	N	N	N	SSMS
47	NITRITE, NO2-	N	N	N	N	N	N	SSMS
47	AMMONIUM, NH4+	N	N	N	N	N	N	SSMS
47	NITROGEN OXIDES,N2O,NO2,N2O4,N2O3,N2O5,NO	9.0E3	N	1.4E5	N	N	N	SSMS
47	AMMONIA, NH3	1.8E4	3.5E2	2.5E3	5.0E1	5.0	.10	SSMS
47	HYDRAZINE	1.5E2	N	2.3	N	4.5	N	SSMS
47	HYDROGEN CYANIDE, HCN	1.1E4	3.4E4	5.0E2	2.5E1	1.0	.05	SSMS
47	ALKALI CYANIDES, NACN, KCN	5.0E3	N	5.0E2	2.5E1	1.0	.05	SSMS
47	CYANOGEN, C2N2	2.0E4	1.0E3	1.0E3	2.5E1	2.0	.05	SSMS
47	NITRIC ACID, HNO3	5.0E3	N	7.5E4	4.5E2	1.5E3	.90	SSMS
48	PHOSPHORUS, P	1.0E2	N	1.5E4	.50	3.0E1	.001	SSMS
48	PHOSPHATE, PO4-3	N	N	N	N	N	N	SSMS
48	PHOSPHITE, PO3-3 (AS P)	1.0E2	N	1.5E4	.50	3.0E1	.001	SSMS
48	BIPHOSPHATE, H2PO4- (AS P)	1.0E2	N	1.5E4	.50	3.0E1	.001	SSMS
48	PHOSPHINE, PH3	4.0E2	N	6.0E3	N	N	N	SSMS
48	PHOSPHORIC ACID, H3PO4	1.0E3	N	1.5E4	4.5E3	3.0E1	9.0	SSMS
48	PHOSPHORUS PENTASULFIDE	1.0E3	N	1.5E4	N	3.0E1	N	SSMS
49	ARSENIC, AS	2.0	N	2.5E2	5.0E1	.50	.10	AA
49	METALLIC ARSENIC	2.0	N	2.5E2	5.0E1	.50	.10	AA
49	ARSENOUS, AS +3	2.0	N	2.5E2	5.0E1	.50	.10	AA
49	ARSENIC, AS +5	2.0	N	2.5E2	5.0E1	.50	.10	AA
49	ARSENATE, ASO4-3 (AS AS)	2.0	N	2.5E2	5.0E1	.50	.10	AA
49	ARSENITE, ASO3-3 (AS AS)	2.0	N	2.5E2	5.0E1	.50	.10	AA
49	ARSENIDE, AS -3 (AS AS)	2.0	N	2.5E2	5.0E1	.50	.10	AA
49	ARSINE, ASH3	2.0	N	2.5E2	5.0E1	.50	.10	AA
49	ARSENIC TRIOXIDE, AS2O3	2.0	N	2.5E2	5.0E1	.50	.10	AA

LIST A-8 - SSMS/AA CATEGORY

N = NOT YET ASSIGNED NYD = NOT YET DETERMINED

		GASEOUS		LIQUID		SOLID WASTE		SAMPLE
		HEALTH (MICROGM/CU M)	ECOLOGY	HEALTH (MICROGM/L)	ECOLOGY	HEALTH (MICROGM/GRAM)	ECOLOGY	FRACTION
50	ANTIMONY, SB	5.0E2	N	7.5E3	2.0E2	1.5E1	.40	AA
50	ANTIMONY METAL, SB	5.0E2	N	7.5E3	2.0E2	1.5E1	.40	AA
50	ANTIMONOUS, (STIBNOUS) SB+3	5.0E2	N	7.5E3	2.0E2	1.5E1	.40	AA
50	ANTIMONIC (STIBNIC) SB+5	5.0E2	N	7.5E3	2.0E2	1.5E1	.40	AA
50	STIBINE, SBH3 (AS SB)	5.0E2	N	7.5E3	2.0E2	1.5E1	.40	AA
50	ANTIMONOUS SULFIDE, SB2S3	5.0E2	N	7.5E3	2.0E2	1.5E1	.40	AA
50	ANTIMONY TRIOXIDE, SB2O3	5.0E1	N	7.5E2	2.0E2	1.5	.40	AA
51	BISMUTH, BI	4.1E2	N	6.1E3	N	1.2E1	N	SSMS
51	ELEMENTAL BISMUTH, BI	4.1E2	N	6.1E3	N	1.2E1	N	SSMS
51	BISMUTHOUS, BI+3 (AS BI)	4.1E2	N	6.1E3	N	1.2E1	N	SSMS
51	BISMUTHIC, BI+5 (AS BI)	4.1E2	N	6.1E3	N	1.2E1	N	SSMS
52	OZONE, O3	2.0E2	1.0E1	N	N	N	N	SSMS
53	RHOMBIC SULFUR, S8	N	N	N	N	N	N	SSMS
53	SULFIDE, S-2	N	N	N	N	N	N	SSMS
53	SULFATE, SO4-2	N	N	N	N	N	N	SSMS
53	SULFITE, SO3-2	N	N	N	N	N	N	SSMS
53	THIOCYANATE, SCN-	N	N	N	N	N	N	SSMS
53	SULFUR DIOXIDES, SO2	1.3E4	N	2.0E5	N	4.0E2	N	SSMS
53	SULFUR TRIOXIDE, SO3	N	N	N	N	N	N	SSMS
53	CARBONYL SULFIDE, COS	4.4E5	N	N	N	N	N	SSMS
53	HYDROGEN SULFIDE, H2S	1.5E4	N	2.3E4	1.0E1	N	N	SSMS
53	CARBON DISULFIDE, CS2	6.0E4	N	9.0E5	1.0E4	N	N	SSMS
53	SULFURIC ACID, H2SO4	1.0E3	N	1.5E4	4.5E2	3.0E1	9.0E2	SSMS
54	SELENIUM, SE	2.0E2	N	5.0E1	2.5E1	.10	.05	SSMS
54	ELEMENTAL SELENIUM, SE	2.0E2	N	5.0E1	2.5E1	.10	.05	SSMS
54	SELENIDE, SE-2	2.0E2	N	5.0E1	2.5E1	.10	.05	SSMS
54	SELENITES, SEO3-2 (AS SE)	2.0E2	N	5.0E1	2.5E1	.10	.05	SSMS
54	SELENATES, SEO4-2 (AS SE)	2.0E2	N	5.0E1	2.5E1	.10	.05	SSMS
54	HYDROGEN SELENIDE, H2SE	2.0E2	N	5.0E1	2.5E1	.10	.05	SSMS
54	CARBON DISELENIDE, CSE2 (AS SE)	2.0E2	N	5.0E1	2.5E1	.10	.05	SSMS
54	SELENIUM DIOXIDE, SEO2 (AS SE)	2.0E2	N	5.0E1	2.5E1	.10	.05	SSMS

LIST A-8 - SSMS/AA CATEGORY

N = NOT YET ASSIGNED NYD = NOT YET DETERMINED

		GASEOUS		LIQUID		SOLID WASTE		SAMPLE FRACTION
		HEALTH (MICROGM/CU M)	ECOLOGY	HEALTH (MICROGM/L)	ECOLOGY	HEALTH (MICROGM/GRAM)	ECOLOGY	
55	TELLURIUM, TE	1.0E2	N	1.5E3	N	3.0	N	SSMS
55	TELLURIDE, TE-2	1.0E2	N	1.5E3	N	3.0	N	SSMS
55	TELLURITE, TEO3-2 (AS TE)	1.0E2	N	1.5E3	N	3.0	N	SSMS
55	TELLURATE, TEO4 (AS TE)	1.0E2	N	1.5E3	N	3.0	N	SSMS
56	FLUORIDE ION, F-	2.5E3	N	3.8E4	N	7.5E1	N	SSMS
56	HYDROGEN FLUORIDE, HF	2.0E3	N	3.0E4	N	N	N	SSMS
57	CHLORIDE ION, CL-	N	N	1.3E6	N	2.6E3	N	SSMS
57	HYPOCHLORITE, CLO-	N	N	N	N	N	N	SSMS
57	CHLORITE, CLO2-	N	N	N	N	N	N	SSMS
57	CHLORATE, CLO3	N	N	N	N	N	N	SSMS
57	HYDROGEN CHLORIDE, HCL	7.0E3	N	1.1E5	N	N	N	SSMS
57	CHLORINE DIOXIDE, CLO2	N	N	N	N	N	N	SSMS
57	CARBONYL CHLORIDE (PHOSGENE), COCL2	4.0E2	N	6.0E3	N	N	N	SSMS
58	BROMIDE ION, BR-	N	N	N	N	N	N	SSMS
58	BROMIDE ION, BR-	N	N	N	N	N	N	SSMS
58	HYDROGEN BROMIDE, HBR	1.0E4	N	1.5E5	N	N	N	SSMS
59	IODIDE ION, I-	N	N	N	N	N	N	SSMS
60	SCANDIUM, SC	5.3E4	N	8.0E5	N	1.6E3	N	SSMS
60	SCANDIUM ION, SC+3	5.3E4	N	8.0E5	N	1.6E3	N	SSMS
61	YTTRIUM ION, Y+3	1.0E3	N	1.5E4	N	3.0E1	N	SSMS
62	TITANIUM, TI	6.0E3	N	9.0E4	8.2E2	1.8E2	1.6	SSMS
62	TITANOUS, TI+3 (AS TI)	6.0E3	N	9.0E4	8.2E2	1.8E2	1.6	SSMS
62	TITANIC, TI+4 (AS TI)	6.0E3	N	9.0E4	8.2E2	1.8E2	1.6	SSMS
62	TITANIUM DIOXIDE, TIO2 (AS TI)	6.0E3	N	9.0E4	8.2E2	1.8E2	1.6	SSMS
63	ZIRCONIUM ION, ZR+4	5.0E3	N	7.5E4	N	1.5E1	N	SSMS
63	ZIRCONIUM DIOXIDE, ZRO2 (AS ZR)	5.0E3	N	7.5E4	N	1.5E1	N	SSMS

LIST A-8 - SSMS/AA CATEGORY

N = NOT YET ASSIGNED NYD = NOT YET DETERMINED

		GASEOUS		LIQUID		SOLID WASTE		SAMPLE FRACTION
		HEALTH	ECOLOGY	HEALTH	ECOLOGY	HEALTH	ECOLOGY	
		(MICROGM/CU M)		(MICROGM/L)		(MICROGM/GRAM)		
64	HAFNIUM ION, HF+4	5.0E2	N	7.5E4	N	1.5	N	SSMS
65	VANADIUM, V	5.0E2	1.0	2.5E3	1.5E2	5.0	.30	SSMS
65	ELEMENTAL VANADIUM, V	5.0E2	1.0	2.5E3	1.5E2	5.0	.30	SSMS
65	VANADIC, V+3 (AS V)	5.0E2	1.0	2.5E3	1.5E2	5.0	.30	SSMS
65	VANADYL, VO+2 (AS V)	5.0E2	1.0	2.5E3	1.5E2	5.0	.30	SSMS
65	ORTHOVANADATE, VO4-4 (AS V)	5.0E2	1.0	2.5E3	1.5E2	5.0	.30	SSMS
65	METAVANADATE, VO3- (AS V)	5.0E2	1.0	2.5E3	1.5E2	5.0	.30	SSMS
65	VANADYLIC, VO+3 (AS V)	5.0E2	1.0	2.5E3	1.5E2	5.0	.30	SSMS
65	VANADIUM MONOXIDE, VO (AS V)	5.0E2	1.0	2.5E3	1.5E2	5.0	.30	SSMS
65	VANADIUM TRIOXIDE, V2O3 (AS V)	5.0E2	1.0	2.5E3	1.5E2	5.0	.30	SSMS
65	VANADIUM TETRAOXIDE, V2O4 (AS V)	5.0E2	1.0	2.5E3	1.5E2	5.0	.30	SSMS
65	VANADIUM PENTOXIDE, V2O5 (AS V)	5.0E2	1.0	2.5E3	1.5E2	5.0	.30	SSMS
65	VANADIUM CARBIDE, VC (AS V)	5.0E2	1.0	2.5E3	1.5E2	5.0	.30	SSMS
65	VANADIUM MONOSULFIDE, VS (AS V)	5.0E2	1.0	2.5E3	1.5E2	5.0	.30	SSMS
65	VANADIUM NITRIDE, VN (AS V)	5.0E2	1.0	2.5E3	1.5E2	5.0	.30	SSMS
65	VANADYL SULFATE, VOSO4 5H2O (AS V)	5.0E2	1.0	2.5E3	1.5E2	5.0	.30	SSMS
66	NIOBUS, NB+3	2.2E4	N	3.3E5	N	6.5E2	N	SSMS
66	NIOBIC, NB+5	2.2E4	N	3.3E5	N	6.5E2	N	SSMS
66	NIOBIUM OXIDES, NBO, NB2O5 (AS NB)	2.2E4	N	3.3E5	N	6.5E2	N	SSMS
67	TANTALUM ION, TA+5	5.0E3	N	7.5E4	N	1.5E2	N	SSMS
68	CHROMIUM, CR	1.0	N	2.5E4	2.5E2	.50	.50	SSMS
68	CHROMOUS, CR+2 (AS CR)	1.0	N	2.5E2	2.5E2	.50	.50	SSMS
68	CHROMIC, CR+3 (AS CR)	1.0	N	2.5E2	2.5E2	.50	.50	SSMS
68	CHROMATES, CRO4-2 (AS CR)	1.0	N	2.5E2	2.5E2	.50	.50	SSMS
68	CHROMITES, CR2O4-2 (AS CR)	1.0	N	2.5E2	2.5E2	.50	.50	SSMS
68	DICHROMATES, CR2O7-2 (AS CR)	1.0	N	2.5E2	2.5E2	.50	.50	SSMS
68	CHROMIUM CARBONYL, CR(CO)6 (AS CR)	1.0	N	2.5E2	2.5E2	.50	.50	SSMS
68	CHROMIUM SULFIDE, CR2S3	1.0	N	2.5E2	2.5E2	.50	.50	SSMS
68	CHROMIC OXIDE, CR2O3 (AS CR)	1.0	N	2.5E2	2.5E2	.50	.50	SSMS
68	CHROMITE MINERAL, FEO CR2O3 (AS CR)	1.0	N	2.5E2	2.5E2	.50	.50	SSMS
68	HYDROUS CHROMIUM PHOSPHATE CRPO4 XH2O (AS CR)	1.0	N	2.5E2	2.5E2	.50	.50	SSMS
68	IRON CHROMATE, FECRO4 (AS CR)	1.0	N	2.5E2	2.5E2	.50	.50	SSMS

LIST A-8 - SSMS/AA CATEGORY

N = NOT YET ASSIGNED NYD = NOT YET DETERMINED

		GASEOUS		LIQUID		SOLID WASTE		SAMPLE FRACTION
		HEALTH (MICROGM/CU M)	ECOLOGY	HEALTH (MICROGM/L)	ECOLOGY	HEALTH (MICROGM/GRAM)	ECOLOGY	
69	MOLYBDENUM, MO	5.0E3	N	7.5E4	7.0E3	1.5E2	1.4E1	SSMS
69	MOLYBDENOUS, MO+2	5.0E3	N	7.5E4	7.0E3	1.5E2	1.4E1	SSMS
69	MOLYBDIC, MO+3	5.0E3	N	7.5E4	7.0E3	1.5E2	1.4E1	SSMS
69	MOLYBDATE, MOO4-2 (AS MO)	5.0E3	N	7.5E4	7.0E3	1.5E2	1.4E1	SSMS
69	MOLYBDENUM SULFIDE, MOS2 (AS MO)	5.0E3	N	7.5E4	7.0E3	1.5E2	1.4E1	SSMS
69	MOLYBDENUM TRIOXIDE, MOO3 (AS MO)	5.0E3	N	7.5E4	7.0E3	1.5E2	1.4E1	SSMS
70	TUNGSTEN, W	1.0E3	N	1.5E4	N	3.0E1	N	SSMS
70	TUNGSTEN IONS, W+2, W+4, W+5, W+6, WO4-2	N	N	N	N	N	N	SSMS
70	TUNGSTEN DISULFIDE, WS2 (AS W)	1.0E3	N	1.5E4	N	3.0E1	N	SSMS
70	WOLFRAMITE MINERAL, FEWO4 MNWO4 (AS W)	1.0E3	N	1.5E4	N	3.0E1	N	SSMS
71	MANGANESE, MN	5.0E3	N	2.5E2	1.0E2	.50	.20	SSMS
71	MANGANOUS, MN+2	5.0E3	N	2.5E2	1.0E2	.50	.20	SSMS
71	MANGANIC, MN+3	5.0E3	N	2.5E2	1.0E2	.50	.20	SSMS
71	PERMANGANATE, MNO4- (AS MN)	5.0E3	N	2.5E2	1.0E2	.50	.20	SSMS
71	MANGANOUS OXIDE, MNO (AS MN)	5.0E3	N	2.5E2	1.0E2	.50	.20	SSMS
71	MANGANESE DIOXIDE, MNO2 (AS MN)	5.0E3	N	2.5E2	1.0E2	.50	.20	SSMS
71	MANGANESE CARBONATE, MNCO3 (AS MN)	5.0E3	N	2.5E2	1.0E2	.50	.20	SSMS
71	MANGANOUS SULFATE, MNSO4 (AS MN)	5.0E3	N	2.5E2	1.0E2	.50	.20	SSMS
71	MANGANESE SULFIDE, MNS2 (AS MN)	5.0E3	N	2.5E2	1.0E2	.50	.20	SSMS
72	FERROUS, FE+2	1.0E3	N	1.5E3	2.5E2	3.0	.50	SSMS
72	FERRIC, FE+3	1.0E3	N	1.5E3	2.5E2	3.0	.50	SSMS
72	FERROCYANIDE, FE(CN)6-4	N	N	N	N	N	N	SSMS
72	FERRICYANIDE, FE(CN)6-3	N	N	N	N	N	N	SSMS
72	FERROUS OXIDE, FEO	5.0E3	N	7.5E4	N	1.5E2	N	SSMS
72	FERRIC OXIDE, FE2O3	N	N	N	1.0E5	N	2.0E2	SSMS
72	FERRIC HYDROXIDE (HYDRATED) FE2O3 XH2O	N	N	N	N	N	N	SSMS
72	IRON SULFIDES, FES, FE2S3	N	N	N	N	N	N	SSMS
72	PYRITE, FES2	N	N	N	1.0E5	N	2.0E2	SSMS
72	MAGNETITE, FEO FE2O3	9.3E3	N	6.2E3	N	3.8E1	N	SSMS
72	POTASSIUM IRON SILICATE, KFESI2O6	N	N	N	N	N	N	SSMS
72	IRON CARBONYLS, FE(CO)5, FE(CO)9, FE3(CO)12	7.0E2	N	1.1E4	N	2.1E1	N	SSMS
73	RUTHENIUM ION, RU+3	N	N	N	N	N	N	SSMS

LIST A-8 - SSMS/AA CATEGORY

N = NOT YET ASSIGNED NYU = NOT YET DETERMINED

		GASEOUS		LIQUID		SOLID WASTE		SAMPLE FRACTION
		HEALTH (MICROGM/CU M)	ECOLOGY	HEALTH (MICROGM/L)	ECOLOGY	HEALTH (MICROGM/GRAM)	ECOLOGY	
74	COBALT, CO	5.0E1	N	7.5E2	2.5E2	1.5	.50	SSMS
74	COBALTOUS, CO+2	5.0E1	N	7.5E2	2.5E2	1.5	.50	SSMS
74	COBALTIC, CO+3	5.0E1	N	7.5E2	2.5E2	1.5	.50	SSMS
74	COBALTOUS CARBONATE HYDRATED COCO3 H2O (ASCO)	5.0E1	N	7.5E2	2.5E2	1.5	.50	SSMS
74	COBALT CARBIDE, CO3C (AS CO)	5.0E1	N	7.5E2	2.5E2	1.5	.50	SSMS
74	COBALT SULFIDES, COS, CO2S3 (AS CO)	5.0E1	N	7.5E2	2.5E2	1.5	.50	SSMS
74	COBALT ARSENIC SULFIDE, COASS (AS CO)	5.0E1	N	7.5E2	2.5E2	1.5	.50	SSMS
74	COBALT ARSENIDE, COAS2 (AS CO)	5.0E1	N	7.5E2	2.5E2	1.5	.50	SSMS
74	COBALT CARBONYL, CO(CO)4 (AS CO)	5.0E1	N	7.5E2	2.5E2	1.5	.50	SSMS
74	COBALTOUS OXIDE, COO (AS CO)	5.0E1	N	7.5E2	2.5E2	1.5	.50	SSMS
74	COBALTOUS HYDROXIDE, CO(OH)2 (AS CO)	5.0E1	N	7.5E2	2.5E2	1.5	.50	SSMS
75	RHODIUM ION, RH+3	1.0	N	1.5E1	N	.03	N	SSMS
76	NICKEL, NI	1.5E1	N	2.3E2	1.0E1	.45	.02	SSMS
76	NICKELOUS, NI+2	1.5E1	N	2.3E2	1.0E1	.45	.02	SSMS
76	NICKELIC, NI+3	1.5E1	N	2.3E2	1.0E1	.45	.02	SSMS
76	NICKEL CARBONYL, NI(CO)4	4.3E1	N	6.5E2	1.0E1	1.0	2.0E-3	SSMS
76	NICKELOUS SULFIDE, NIS (AS NI)	1.5E1	N	2.3E2	1.0E1	.45	.02	SSMS
76	NICKEL ARSENIDE, NIAS (AS NI)	1.5E1	N	2.3E2	1.0E1	.45	.02	SSMS
76	NICKEL OXIDE, NIO (AS NI)	1.5E1	N	2.3E2	1.0E1	.45	.02	SSMS
76	NICKEL ANTIMONIDE, NISB (AS NI)	1.5E1	N	2.3E2	1.0E1	.45	.02	SSMS
76	NICKEL ARSENIC SULFIDE, NIASS (AS NI)	1.5E1	N	2.3E2	1.0E1	.45	.02	SSMS
77	ELEMENTAL PLATINUM, PT	2.0	N	3.0E1	N	.06	N	SSMS
78	COPPER	2.0E2	N	5.0E3	5.0E1	1.0E1	.10	SSMS
78	CUPROUS, CU+	2.0E2	N	5.0E3	5.0E1	1.0E1	.10	SSMS
78	CUPRIC, CU+2	2.0E2	N	5.0E3	5.0E1	1.0E1	.10	SSMS
78	COPPER FLUORIDE, CUF2 (AS CU)	2.0E2	N	5.0E3	5.0E1	1.0E1	.10	SSMS
78	COPPER OXIDES, CUO, CU2O (AS CU)	2.0E2	N	5.0E3	5.0E1	1.0E1	.10	SSMS
78	COPPER SULFATE, CUSO4 (AS CU)	2.0E2	N	5.0E3	5.0E1	11.E1	.10	SSMS
78	COPPER SULFIDES, CUS, CU2S (AS CU)	2.0E2	N	5.0E3	5.0E1	1.0E1	.10	SSMS
78	COPPER CARBONATE, CUCO3 (AS CU)	2.0E2	N	5.0E3	5.0E1	1.0E1	.10	SSMS
78	CHALCOPYRITE MINERAL, CUFES2	N	N	N	N	N	N	SSMS
78	MALACHITE MINERAL, CUCO3 CU(OH)2 (AS CU)	2.0E2	N	5.0E3	5.0E1	1.0E1	.10	SSMS

LIST A-8 - SSMS/AA CATEGORY

N = NOT YET ASSIGNED NYD = NOT YET DETERMINED

		GASEOUS		LIQUID		SOLID WASTE		SAMPLE FRACTION
		HEALTH	ECOLOGY	HEALTH	ECOLOGY	HEALTH	ECOLOGY	
		(MICROGM/CU M)		(MICROGM/L)		(MICROGM/GRAM)		
79	SILVER, AG	1.0E1	N	2.5E2	5.0	.50	.1	SSMS
79	SILVER ION, AG+ (AS AG)	1.0E1	N	2.5E2	5.0	.50	.1	SSMS
79	SILVER CHLORIDE, AGCL (AS AG)	1.0E1	N	2.5E2	5.0	.50	.1	SSMS
79	SILVER CYANIDE, AGCN (AS AG)	1.0E1	N	2.5E2	5.0	.50	.1	SSMS
79	SILVER SULFIDE, AG2S (AS AG)	1.0E1	N	2.5E2	5.0	.50	.1	SSMS
80	ELEMENTAL GOLD	N	N	N	N	N	N	SSMS
81	ZINC, ZN	4.0E3	N	2.5E4	1.0E2	5.0E1	.20	SSMS
81	ELEMENTAL ZINC, ZN	4.0E3	N	2.5E4	1.0E2	5.0E1	.20	SSMS
81	ZINC ION, ZN+2	4.0E3	N	2.5E4	1.0E2	5.0E1	.20	SSMS
81	ZINC OXIDE, ZNO (AS ZN)	4.0E3	N	2.5E4	1.0E2	5.0E1	.20	SSMS
81	ZINC SULFATE, ZNSO4 (AS ZN)	4.0E3	N	2.5E4	1.0E2	5.0E1	.20	SSMS
81	ZINC SULFIDE, ZNS (AS ZN)	4.0E3	N	2.5E4	1.0E2	5.0E1	.20	SSMS
82	CADMIUM, CD	1.0E1	N	5.0E1	1.0	.10	.002	SSMS
82	ELEMENTAL CADMIUM, CD	1.0E1	N	5.0E1	1.0	.10	.002	SSMS
82	CADMIUM ION, CD+2	1.0E1	N	5.0E1	1.0	.10	.002	SSMS
82	CADMIUM SULFIDE, CDS (AS CD)	1.0E1	N	5.0E1	1.0	.10	.002	SSMS
82	CADMIUM OXIDE, CDO (AS CD)	1.0E1	N	5.0E1	1.0	.10	.002	SSMS
83	MERCURY, HG	5.0E1	1.0E1	1.0E1	2.5E2	.02	.50	AA
83	ELEMENTAL MERCURY, HG	5.0E1	1.0E1	1.0E1	2.5E2	2.0E2	.50	AA
83	MERCUROUS, HG2++	5.0E1	1.0E1	1.0E1	2.5E2	.02	.50	AA
83	MERCURIC, HG++	5.0E1	1.0E1	1.0E1	2.5E2	.02	.50	AA
83	MERCURIC SULFIDE, HGS	5.0E1	1.0E1	1.0E1	2.5E2	.02	.50	AA
83	MERCURIC CHLORIDE, HGCL2	5.0E1	1.0E1	1.0E1	2.5E2	.02	.50	AA
84	LANTHANUM, LA	1.1E5	N	1.7E6	N	3.4E3	N	SSMS
84	CERIUM, CE (CE+3, CE+4, CE2O3)	3.7E4	N	5.5E5	N	1.1E3	N	SSMS
84	PRASEODYMIUM, PR (PR+3)	5.1E4	N	7.7E5	N	1.5E3	N	SSMS
84	NEODYMIUM, ND (ND+3)	N	N	N	N	N	N	SSMS
84	SAMARIUM, SM (SM+3)	5.3E4	N	7.9E5	N	1.6E3	N	SSMS
84	DYSPROSIUM, DY (DY+3)	9.3E3	N	2.3E5	N	4.6E2	N	SSMS